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FIRST ANNUAL REPORT

OF THE

COMMISSIONER OF HEALTH

OF THE

State of Pennsylvania

COMMONWEALTH OF PENNSYLVANIA.



HARRISBURG, PA.:
HARRISBURG PUBLISHING CO., STATE PRINTER.
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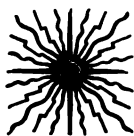


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LETTER OF TRANSMITTAL.

Commonwealth of Pennsylvania,

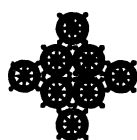
Department of Health,

State Capitol, Harrisburg, December 28, 1907.

To His Excellency, Edwin S. Stuart, Governor of Pennsylvania:

Sir: In compliance with the requirements of Section 13 of the act "Creating a Department of Health and defining its powers and duties," approved the 27th day of April, A. D. 1905, I have the honor to transmit my First Annual Report as Commissioner of Health, covering the period beginning with the date of my appointment, June 6, 1905, and ending Dec. 31, 1906.

SAMUEL G. DIXON,
Commissioner of Health.



FIRST ANNUAL REPORT
OF THE
COMMISSIONER OF HEALTH
OF THE
COMMONWEALTH OF PENNSYLVANIA

Presented by the Commissioner, SAMUEL G. DIXON, M. D.

December 28, 1907.

To His Excellency, Edwin S. Stuart, Governor of Pennsylvania:

Sir: In accordance with the provisions of the Act of April 27, 1905, "Creating a Department of Health and defining its powers and duties," it becomes my duty to submit to your Excellency a "report upon the Vital Statistics and sanitary conditions and prospects of the state," for the period commencing the sixth day of June, 1905, and terminating the thirty-first day of December, 1906.

This report is required to "set forth the action of the Department and of its officers and agents and the names thereof, a detailed statement of all moneys paid out by or on account of the Department and the manner of its expenditure, and other useful information, and to suggest any further legislative action or precaution deemed necessary for the better protection of life and health."

The first opportunity for the presentation of a report would have been February 1, 1906, but inasmuch as this would have covered a period of less than seven months, and as the complete organization of the Department had been seriously interfered with by the necessity for prompt executive action in connection with epidemics of typhoid fever and smallpox in various parts of the State, it was deemed wise, on consultation with His Excellency, Governor Pennypacker, not to attempt to present so incomplete a report as must have been offered at that time, but to postpone its presentation until the conclusion of a full year, thus affording time for the development of the Department in its various branches and systematizing the work of its several divisions.

Especially was it desirable that the statistical portion of the report, as regarded births, marriages and deaths, the prevalence of communicable diseases and the distribution of free antitoxin among the poor for checking the spread of diphtheria, should present figures for an entire year, which would be of use for comparison with those of future years.

LAWS OF 1905 IN REFERENCE TO THE DEPARTMENT OF HEALTH.

Inasmuch as the establishment of this Department marks the opening of a new era in Public Health Administration in this Commonwealth, it will be expedient to quote not only the law just referred to, but two others, passed at the same session, which are supplementary to it, defining more in detail the powers and duties of the Commissioner in respect to matters of vital concern to the public welfare which are thus placed under his direct control.

These are the "Act to preserve the purity of the waters of the State for the protection of the Public Health," and the "Act to provide for the immediate registration of all births and deaths throughout the Commonwealth of Pennsylvania, etc."

The following is the correct text of the first two of these three laws:

AN ACT

Creating a Department of Health, and defining it powers and duties.

Section 1. Be it enacted, etc., That the Department of Health shall consist of a Commissioner of Health and an advisory board.

The Commissioner of Health shall be the head of the Department, and shall be appointed by the Governor, with the advice and consent of the Senate. He shall be a physician of at least ten years' professional experience, and a graduate of a legally constituted medical college.

The term of office of the Commissioner first appointed hereunder shall expire on the first day of March, one thousand nine hundred and seven, and the term of office of every Commissioner thereafter appointed shall be four years, beginning on first day of March, of the year in which he is appointed.

Upon the appointment and qualification of the Commissioner of Health the terms of the members of the State Board of Health and the Secretary of such board shall expire, and no appointments shall thereafter be made to those offices.

Section 2. The Commissioner of Health shall receive an annual salary of ten thousand dollars, and his expenses actually and necessarily incurred in the performance of his official duties, to be paid monthly by the State Treasurer, on the warrant of the Auditor General.

Section 3. The advisory board shall consist of six members, a majority of whom shall be physicians, graduates of legally constituted medical colleges and of at least ten years' experience in the practice of their profession, and one of whom shall be a civil engineer. The members of the advisory board shall be appointed by the Governor, with the advice and consent of the Senate. Any vacancy occurring in said board, during a recess of the Legislature, shall be filled by the Governor, until the next regular session of the same. The term of office of the members of the advisory board shall be for four years from the date of appointment.

Section 4. The Commissioner of Health shall preside at the meeting of the board, and shall be entitled to a vote upon any matter that comes before it.

Three members of the advisory board, together with the Commissioner of Health, shall constitute a quorum for the transaction of business.

No members of the advisory board shall, as such, receive any salary; but the actual traveling and other expenses of any member while engaged on the actual duties of the board shall be allowed, and paid on presentation to and approval by the Auditor General of an itemized account.

Section 5. The advisory board shall meet in the Capitol, at Harrisburg (unless otherwise ordered by the board), on the call of the Commissioner of Health.

It shall be the duty of the advisory board to advise the Commissioner on such matters as he may bring before it, and to draw up such reasonable orders and regulations as are deemed by said board necessary for the pre-

vention of disease and for the protection of the lives and health of the people of the State, and for the proper performance of other work of the Department of Health.

Section 6. The Commissioner of Health may employ such clerical and other assistants as are necessary for the proper performance of the work of the Department, and he may distribute appropriate powers and duties to the employes of the Department of Health, not inconsistent with the Constitution or laws of this State.

Section 7. The Commissioner may, from time to time, employ competent persons to render sanitary service and make or supervise practical and scientific investigations and examinations requiring expert skill, and prepare plans and reports relative thereto, and he may purchase such supplies and materials as may be necessary in carrying on the work of his Department.

He may issue subpoenas to secure the attendance of witnesses, and compel them to testify in any matter or proceeding before him or his authorized agent.

He may issue warrants to any sheriff, constable, or policeman to apprehend and arrest such persons who disobey the quarantine orders or regulations of the Department of Health. Every warrant shall be forthwith executed by the officer to whom directed, who shall make due return of the execution thereof to the Commissioner.

Section 8. It shall be the duty of the Commissioner of Health to protect the health of the people of the State, and to determine and employ the most efficient and practical means for the prevention and suppression of disease.

The Commissioner of Health shall cause examination to be made of nuisances or questions affecting the security of life and health in any locality, and for that purpose the Commissioner, and any person authorized by him so to do, may, without fee or hindrance, enter, examine and survey all grounds, vehicles, apartments, buildings, and places within the State, and all persons so authorized by him shall have the powers and authority conferred by law upon constables.

Section 9. The Commissioner shall have power and authority to order nuisances, detrimental to the public health, or the causes of disease and mortality, to be abated and removed, and to enforce quarantine regulations.

If the owner or occupant of any premises, whereon any nuisance detrimental to the public health exists, fails to comply with any order of the Commissioner of Health for the abatement or removal thereof, the Commissioner, his agents or employes, may enter upon the premises to which such order relates and abate or remove such nuisance.

The expense of such abatement or removal shall be paid by the owner or occupant of such premises, or by the person who caused or maintained such nuisance, and such expense shall be a lien upon the lands upon which the nuisance was maintained; for which a claim may be filed by the Commissioner, in the name of the Commonwealth, in the court of common pleas for the county in which the lands are, within six months from the date of completion of the work of abatement or removal, subject to the same proceedings for entry or revival of judgment and execution as are provided by law for other municipal liens. The Commissioner may also maintain an action against such owner or occupant, in the name of the Commonwealth, to recover the amount of such expense, in the same way as debts of like amount are by law recoverable; and the same, when recovered either by enforcement of the lien or by the personal action, shall be paid to the State Treasurer, to be held and used as the funds of the Department of Health; but a final recovery of the amount, in one proceeding, shall be a bar to the further continuance of the other: Provided, however, That this act shall not apply to waters pumped or flowing from coal mines or tanneries.

Section 10. It shall be the duty of the Commissioner of Health to have general supervision of the State registration of births, marriages, deaths, and diseases; of practitioners of medicine and surgery; of mid-wives, nurses and undertakers, and of all persons whose occupation is deemed to be of importance in obtaining complete registration of births, deaths, marriages, and disease. He shall prescribe and prepare the necessary methods and forms for obtaining and preserving such statistics, and shall secure the prompt and faithful registration of the same in a Bureau of Vital Statistics, to be maintained as a part of his department.

Section 11. The Commissioner of Health may, with the advice and concurrence of the advisory board, make appropriate regulations for the thorough organization and efficiency of the registration of vital statistics throughout the State, and the Commissioner shall have the power and authority to enforce such regulations.

In order to insure the official registration of vital statistics and the management of the sanitary affairs in the different parts of the State, the Commissioner of Health may apportion the State into ten districts; and in each district he shall appoint a health officer, who shall, under the direction of the Commissioner of Health, have supervision and control of the sanitary affairs

of the district, and of the registration of vital statistics within the district. Such health officer shall be a physician of at least five years' professional experience, a graduate of a legally constituted medical college, and a resident of the district which he represents. He shall receive an annual salary of two thousand five hundred dollars, and his expenses actually and necessarily incurred in the performance of his official duties. The commissioner of Health may appoint and employ such assistants to the health officers of the districts as he may deem necessary, in carrying out the provisions of this act.

Section 12. The Commissioner of Health may revoke or modify any order, regulation, by-law, or ordinance of a local board of health, concerning a matter which, in his judgment, affects the public health beyond the territory over which such local board has jurisdiction.

Section 13. The Commissioner of Health shall, annually, on or before the first day of February, make a written report to the Governor, upon the vital statistics and sanitary conditions and prospects of the State. Such report shall set forth the action of the department and of its officers and agents, and the names thereof during the past year; a detailed statement of all moneys paid out by, or on account of, the department, and the manner of its expenditures, during the year, and other useful information, and shall suggest any further legislative action or precaution deemed necessary for the better protection of life and health.

Section 14. The Commissioner of Health, in addition to the powers conferred, by this act shall have all the powers conferred and perform all the duties heretofore imposed, by law upon the State Board of Health, or any member, committee or officer thereof, including the secretary.

This act shall not affect pending actions or proceedings, civil or criminal, brought by or against the State Board of Health or its officers; but such actions or proceedings may be prosecuted or defended, in the same manner and to the same effect, by the Commissioner of Health as if originally begun by or against him. Nor shall any provision hereof affect in any manner any order or recommendation made by, or any other matters or proceedings before, the State Board of Health, and all such matters and proceedings pending before the board when this act takes effect shall be continued before the Commissioner of Health.

Section 15. All rules and regulations of the Department of Health shall be promulgated by sending printed copies to all local boards of health, school boards, and clerks of councils of cities and boroughs, and by printing, once a week for two weeks, in at least one daily paper of Philadelphia and Pittsburgh, and the rules and regulations shall be printed in circular form and given to any one who demands them.

Section 16. Every person who violates any order or regulation of the Department of Health, or who resists or interferes with any officer or agent thereof in the performance of his duties in accordance with the regulations and orders of the Department of Health shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be punished by a fine of not more than one hundred dollars, or by imprisonment not exceeding one month, or both, at the discretion of the court.

Section 17. All necessary expenses under the provisions of this act shall, after approval in writing by the Governor and the Commissioner of Health, be paid by the State Treasurer, upon the warrant of the Auditor General, in the manner now provided by law.

Approved—The 27th day of April, A. D. 1905.

SAML. W. PENNYPACKER.

The foregoing is a true and correct copy of the act of the General Assembly No. 218.

FRANK M. FULLER,
Secretary of the Commonwealth.

AN ACT

To preserve the purity of the waters of the State, for the protection of the public health.

Section 1. Be it enacted, etc., That the term "waters of the State," wherever used in this act, shall include all streams and springs, and all bodies of surface and of ground water, whether natural or artificial, within the boundaries of the State.

Section 2. Every municipal corporation, private corporation, company, and individual supplying or authorized to supply water to the public, within the State, shall, within sixty days after the passage of this act, file with the Commissioner of Health a certified copy of the plans and surveys of the water-works, with a description of the source from which the supply of water is derived; and no additional source of supply shall thereafter be used, without a written permit from the Commissioner of Health, as hereinafter provided.

Section 3. No municipal corporation, private corporation, company or individual shall construct waterworks for the supply of water to the public within the State, or extend the same, without a written permit, to be obtained from the Commissioner of Health if, in his judgment, the proposed source of supply appears to be not prejudicial to the public health. The application for such permit must be accompanied by a certified copy of the plans and surveys for such waterworks, or extension thereof, with a description of the source from which it is proposed to derive the supply; and no additional source of supply shall subsequently be used for any such waterworks without a similar permit from the Commissioner of Health. When application shall be made for a permit, under either of the above provisions of this section, it shall be the duty of the commissioner to proceed to examine the application, without delay, and, as soon as possible, he shall make a decision, in writing; and, within thirty days after such decision, the corporation, company, or individual making such application may appeal to any court of common pleas of the county, and said court shall, without delay, hear the appeal, and shall make an order approving, setting aside, or modifying such decision, or fixing the terms upon which said permit shall be granted. The penalty for failure to file copies of plans, surveys, and descriptions of existing waterworks, within the time hereinbefore fixed, and for the construction or extension of waterworks, or the use of an additional source of supply, without a permit from the Commissioner of Health, shall be five hundred dollars, and further penalty of fifty dollars per day for each day that the works are in operation contrary to the provisions of this act, recoverable by the Commonwealth, at the suit of the Commissioner of Health, as debts of like amount are recoverable by law.

Section 4. No person, corporation, or municipality shall place, or permit to be placed, or discharge, or permit to flow into any of the waters of the State, any sewage, except as hereinafter provided. But this act shall not apply to waters pumped or flowing from coal mines or tanneries, nor prevent the discharge of sewage from any public sewer system, owned and maintained by a municipality, provided such sewer system was in operation and was discharging sewage into any of the waters of the State at the time of the passage of this act. But this exception shall not permit the discharge of sewage from a sewer system which shall be extended subsequent to the passage of this act.

For the purpose of this act, sewage shall be defined as any substance that contains any of the waste products, or excrementitious or other discharges from the bodies of human beings or animals.

Section 5. Upon application duly made to the Commissioner of Health, by the public authorities having by law the charge of the sewer system of any municipality, the Governor of the State, the Attorney General, and the Commissioner of Health shall consider the case of such a sewer system, otherwise prohibited by this act from discharging sewage into any of the waters of the State, and, whenever it is their unanimous opinion that the general interests of the public health would be subserved thereby, the Commissioner of Health may issue a permit for the discharge of sewage from any such sewer system into any of the waters of the State, and may stipulate in the permit the conditions on which such discharge may be permitted. Such permit, before being operative, shall be recorded in the office of the recorder of deeds for the county wherein the outlet of the said sewer system is located. Every such permit for the discharge of sewage from a sewer system shall be revocable, or subject to modification and change, by the Commissioner of Health, on due notice, after an investigation and hearing, and an opportunity for all interested therein to be heard thereon, being served on the public authorities of the municipality owning, maintaining, or using the sewage system. The length of time, after receipt of the notice, within which the discharge of sewage shall be discontinued may be stated in the permit, but in no case shall it be less than one year or exceed two years, and if the length of time is not specified in the permit it shall be one year. On the expiration of the period of time prescribed, after the service of a notice of revocation, modification, or change, from the Commissioner of Health, the right to discharge sewage into any of the waters of the State shall cease and terminate; and the prohibition of this act against such discharge shall be in full force, as though no permit had been granted. A new permit may thereafter again be granted, as hereinbefore provided.

Section 6. It shall be the duty of the public authorities, having by law the charge of the sewer system, of every municipality in the State, if at the time sewage was being discharged into any of the waters of the State, at the time of the passage of this act, to file with the Commissioner of Health, four months after the passage of this act, a report which shall comprise such facts and information as the Commissioner of Health may require. No sewer system shall be exempt from the provisions of this act, against the discharge of sewage into the waters of the State, for which a satisfactory report shall not be filed with the Commissioner of Health, in accordance with this section.

Section 7. The penalty for the discharge of any sewage from any public sewer system into any of the waters of the State, without a duly issued permit, in any case in which a permit is required by this act, shall be five hundred dollars, and a further penalty of fifty dollars per day for each day the offense is maintained, recoverable by the Commonwealth, at the suit of the Commissioner of Health, as debts of like amount are recoverable by law. The penalty for the discharge of sewage from any public sewer system into any of the waters of the State, without filing a report, in any case in which a report is required to be filed, shall be fifty dollars, recoverable by a like suit.

Section 8. All individuals, private corporations, and companies that, at the time of the passage of this act, are discharging sewage into any of the waters of the State may continue to discharge such sewage, unless, in the opinion of the Commissioner of Health, the discharge of such sewage may become injurious to the public health. If at any time the Commissioner of Health considers that the discharge of such sewage into any of the waters of the State may become injurious to the public health, he may order the discharge of such sewage discontinued.

Section 9. Every individual, private corporation, or company shall discontinue the discharge of sewage into any of the waters of the State, within ten days after having been so ordered by the Commissioner of Health.

Section 10. Any individual, private corporation, or company that shall discharge sewage, or permit the same to flow, into the waters of the State, contrary to the provisions of this act, shall be deemed guilty of a misdemeanor, and shall, upon conviction, be punished by a fine of twenty-five dollars for each offense, and a further fine of five dollars per day for each day the offense is maintained, or by imprisonment not exceeding one month, or both, at the discretion of the court.

Section 11. Any order or decision, under this act, of the Commissioner of Health, or that of the Governor, Attorney General and Commissioner of Health, shall be subject to an appeal to any court of common pleas of the county wherein the outlet of such sewer or sewer system, otherwise prohibited by this act, is situated, and said court shall have power to hear said appeal, and may affirm or set aside said order or decision, or modify the same, or otherwise fix the terms upon which permission shall be granted. But the order or decision appealed from shall not be superseded by the appeal, but shall stand until the order of the court, as above.

Approved—The 22nd day of April A. D. 1905.

SAML. W. PENNYPACKER.

The foregoing is a true and correct copy of the act of the General Assembly No. 182.

FRANK M. FULLER,
Secretary of the Commonwealth.

The Act to provide for the immediate registration of births and deaths will be referred to later.

Previous Legislation.

In order to have a complete conspectus of the powers and duties of the Commissioner, it is necessary also to have in mind the act to establish a State Board of Health, from the fact that Section 14 of the act creating the Department says, "The Commissioner of Health, in addition to the powers conferred by this act shall have all the powers conferred and perform all the duties heretofore imposed by law upon the State Board of Health or any member, Committee or officer thereof, including the Secretary." The following is the correct text of those sections of said act which rehearse the duties and powers of the Board and the Secretary:

Section 5. The State Board of Health and Vital Statistics shall have the general supervision of the interests of the health and lives of the citizens of the Commonwealth and shall especially study its vital statistics. It shall make sanitary investigations and inquiries respecting the causes of disease, and especially of epidemic diseases, including those of domestic animals, the sources of mortality, and the effects of localities, employments, conditions, habits, food, rages and medicine on the health of the people. It shall, when required by Governor or the Legislature, and at such other times as it deems it important, institute sanitary inspections of public institutions or places throughout

the State. It shall codify and suggest amendments to the sanitary laws of the Commonwealth and shall have power to enforce such regulations as will tend to limit the progress of epidemic diseases.

Section 6. In cities, boroughs, districts and places having no local boards of health, or in case the sanitary laws or regulations in places where boards of health or health officers exist should be inoperative, the State Board of Health shall have power and authority to order nuisances, or the cause of any special disease or mortality to be abated and removed, and to enforce quarantine regulations as said Board shall direct.

Section 8. It shall be the duty of all health officers and boards of health in the State to communicate to said State Board of Health copies of all their reports and publications and also such sanitary information as may be requested by said Board. And said Board is authorized to require reports and information (at such times and of such facts, and, generally, of such nature and extent as its by-laws or rules may provide) from all public dispensaries, hospitals, asylums, infirmaries, prisons and schools, and from the managers, principals and officers thereof, and from all other public institutions, their officers and managers, and from the proprietors, managers, lessees and occupants of all places of public resort in the State; but such reports shall only be required concerning matters or particulars in respect of which it may, in its opinion, need information for the proper discharge of its duties.

Section 9. Said Board may, from time to time, engage suitable persons to render sanitary service or to make or supervise practical and scientific investigations and examinations requiring expert skill, and to prepare plans and reports relative thereto.

In considering these recent laws and comparing them with the legislation of twenty years ago one cannot but be impressed with their immense advantage as regards efficiency of administration. This consists,

First, in concentration of authority. The management is placed in the hands of one instead of being distributed among many. This makes possible, promptness of action, a matter of the greatest importance in the management of epidemics and other emergencies. A body consisting of six non-salaried members scattered over all this immense territory of 45,000 square miles could not be called together every time that an emergency arose, and the Courts had recently decided that executive action by the Secretary, taken upon his own instance, was lacking in authority. It also prevents delays resulting from differences of opinion and vacillation in the exercise of authority.

Second, in increase of authority by the provision of adequate penalties for violation or neglect of the sanitary laws of the State or the regulations of the Department, and of the means and methods of imposing the same.

Third, in the generous increase of appropriation, making it possible to undertake operations, especially in regard to the protection of water supplies, which would before have been impossible.

At the same time I appreciate that augmented power and enlarged opportunity involve greatly increased responsibility. I enter upon the discharge of the duties of this important position, therefore, fully mindful of this fact, and firmly resolved to devote my best energies to the building up of the Department, the enforcement of the sanitary laws of the State and the welfare of the people.

While the State Legislature is entitled to full credit for its statesmanlike wisdom in passing so effective and comprehensive a body of legislation for the protection of health, the most so in fact possessed by any State in the Union, justice demands that I should call attention to the fact that to Dr. Charles B. Penrose, of Philadelphia, is due the original conception and the actual working out of these admirable Acts. A graduate of Harvard in the Arts and of the University of Pennsylvania in Medicine, having also received the degrees of A. M. and Ph. D. from the latter institution, Dr. Penrose early attained eminence in the profession, having been appointed surgeon to the Gynecean Hospital, of Philadelphia, in 1887, and to the German Hospital, 1890, and Professor of Gynecology in the University of Pennsylvania in 1893, only nine years after gradu

tion. His tastes however were those of a student, and being possessed of ample means, he resigned this highly honorable position and a lucrative practice at the same time, in 1899, and devoted himself to his pen and the consideration of the wider relationships of the profession. He is the author of a well known "Text Book of Diseases of Women," and has contributed largely to medical and scientific journals.

As a fellow of the College of Physicians of Philadelphia, a member of the American Gynecological Society, The Academy of Natural Sciences of Philadelphia, and the American Association for the Advancement of Science, and a Director of the Zoological Society of Philadelphia, he has taken an active part in the deliberation of those bodies.

When the Board of Health of Philadelphia was reorganized in 1903 he was called upon to share in that important movement as a member of the board. His attention was thus called to the deficiencies in the sanitary laws of the State and the obstacles with which the State Board of Health had to contend in enforcing them, and he set to work resolutely to frame a statute which should adequately control the insanitary conditions from which the people of the Commonwealth were suffering, and to create a sentiment in its favor in the Legislature. The Department is to be congratulated that it is to have the benefit of his counsel as a member of the Advisory Board.

Branch Office.

No sooner had the fact of the inauguration of the Department been made public than the communications began to pour in from all parts of the State. It therefore became imperative to immediately open an office and provide the necessary official and clerical assistance. Unfortunately the new capitol at Harrisburg was not sufficiently advanced toward completion to provide quarters for the Department. In this emergency, the directors of The Academy of Natural Sciences of Philadelphia very generously and promptly tendered the use of a portion of their spacious building in that city for the use of the Commissioner and his staff, until accommodations could be provided at the capitol of the State. These offices proved so convenient and there was found to be so much work of an important nature to be attended to in Philadelphia that it was decided, with the sanction of the councillors, to adopt them as a Branch Office. Since the establishment of our Laboratories in Philadelphia the wisdom of this measure has become more than ever apparent.

Appointments.

Although the law was approved the twenty-seventh day of April, my commission was not received until the sixth of June.

The pressing duty of appointing assistants was at once taken up. Dr. Wilmer R. Batt, State Registrar of Vital Statistics, recently appointed by the retiring State Board of Health, was reappointed by the Commissioner of Health, June 10th. The Bureau of Vital Statistics is by law placed under the direct control and supervision of the Commissioner of Health.

Wilbur Morse, of Ardmore, Montgomery county, was appointed secretary to the Commissioner June 15th; Dr. Benjamin Lee, of Philadelphia, assistant to the Commissioner, June 23rd, and Dr. Frederick C. Johnson, of Bradford, York county, Chief of the Division of Medical Inspection, July 1st. The appointment of F. Herbert Snow as Chief Sanitary Engineer was made August

25th. All of these appointees entered at once upon the duties of their respective positions.

Other appointments were made as the work of the Department demanded, and at the close of the year 1906 the organization of the entire Department was as follows:

Commissioner of Health, SAMUEL G. DIXON, M. D.
Assistant to Commissioner, Benjamin Lee, M. D.
Secretary to Commissioner, Wilbur Morse.
Chief Bookkeeper, E. I. Simpson.
Assistant Bookkeeper, Miss Agnes E. Bean.
Stenographers, Miss Ivy E. Huber and Miss Minnie A. Light.
Messenger, Edward F. Elsely.
Janitor, John Sample.

Division of Medical Inspection.

Chief Medical Inspector, Fred C. Johnson, M. D.
Assistant to Chief Medical Inspector, Arthur B. Moulton, M. D.
Stenographer, Fannie A. Houseknecht.

Division of Sanitary Engineering.

Chief Engineer, F. Herbert Snow.
Assistant Engineers, F. W. Witherell, C. Howe Cummings.
Draftsman, J. L. W. Gibbs.
Stenographers, Miss Irene Cuenot, Miss M. Lou Eckels, Miss Jane Gilbert, Daniel Ness.
Clerk, Mrs. Robert Johnston.
Sanitary Inspectors, M. K. Ely, James M. Clark, Henry Andrews, John W. Downs, John J. Considine, David H. Coleman.

Bureau of Vital Statistics.

State Registrar, Wilmer R. Batt, M. D.
Chief Clerk, Herbert B. Nelson.
Clerk, Miss Mary Lenore Embick.
Stenographers, Miss Erma L. Longenecker, Miss Lila H. Connolly, Miss Lillian H. Shafer, Miss Anna Magdeburg.

Division of Morbidity Statistics.

In charge of Wilmer R. Batt, M. D.
Clerks, Elmer H. Ehler, H. E. Fox, Miss May Harriet Morley, Miss Irene McCalley, Miss Martha E. McGrannagan, Mrs. Edith Huber.

Division of Antitoxin Distribution.

Chief Clerk, Henry W. Peirson.
Stenographer, Mrs. Lucy A. Thompson.
Clerk, Miss Mabel F. Potts.

Laboratories and Experiment Station.

Director of Pathology, Allen J. Smith, M. D.
Chief of Laboratories, Herbert Fox, M. D.

County.	Inspector.	Penna. Postoffice.
Crawford,	J. M. Cooper,	Meadville.
Cumberland,	Harvey B. Bashore,	West Fairview.
Dauphin,	Paul A. Hartman,	Harrisburg.
Delaware,	Robt. S. Malsion,	Chester.
Elk,	W. L. Williams,	Ridgway.
Erie,	J. W. Wright,	Erie.
Fayette,	T. H. White,	Connellsville.
Forest,	T. J. Bovard,	Tionesta.
Franklin,	H. X. Bonbrake,	Chambersburg.
Fulton,	J. W. Mosser,	McConnellsburg.
Greene,	John T. Iams,	Waynesburg.
Huntingdon,	A. B. Brumbaugh,	Huntingdon.
Indiana,	Wm. A. Simpson,	Indiana.
Jefferson,	W. W. Matson,	Brookville.
Juniata,	Wm. H. Banks,	Mifflintown.
Lackawanna,	H. V. Logan,	Scranton.
Lancaster,	M. W. Raub,	Lancaster.
Lawrence,	J. D. Moore,	New Castle.
Lehigh,	Morris F. Cawley,	Allentown.
Lebanon,	E. F. Hellman,	Hellman Dale.
Luzerne,	Chas. P. Knapp,	Wyoming.
Lycoming,	Frank Seely,	Jersey Shore.
McKean,	Burg Chadwick,	Smethport.
Mercer,	P. P. Fisher,	Sharon.
Mifflin,	A. T. Hamilton,	Lewistown.
Monroe,	W. E. Gregory,	Stroudsburg.
Montgomery,	H. H. Whitcomb,	Norristown.
Montour,	Edward A. Curry,	Danville.
Northampton,	Thomas C. Zulick,	Easton.
Northumberland,	A. C. Clark,	Sunbury.
Perry,	A. R. Johnston,	New Bloomfield.
Pike,	Wm. B. Kenworthy,	Milford.
Potter,	E. H. Ashcraft,	Coudersport.
Schuylkill,	Daniel Dechert,	Schuylkill Haven.
Snyder,	E. J. Wagneller,	Selinsgrove.
Somerset,	Charles P. Large,	Meyersdale.
Sullivan,	J. L. Christian,	Lopez.
Susquehanna,	H. B. Lathrop,	Springville.
Tioga,	S. P. Hakes,	Tioga.
Union,	C. H. Dimm,	Mifflinburg.
Venango,	J. P. Strayer,	Oil City.
Warren,	W. M. Robertson,	Warren.
Washington,	C. B. Wood,	Monongahela.
Wayne,	H. B. Ely,	Honesdale.
Westmoreland,	T. A. Kilgenasmith (acting),	Jeannette.
Wyoming,	B. E. Bidleman,	Tunkhannock.
York,	I. C. Gable,	York.

RAILROAD MEDICAL INSPECTORS.

The relation of the great Passenger Railway Companies to the health of the country is rarely appreciated. They are obliged as common carriers to accept as passengers and transport persons in every condition of life and of every degree of personal cleanliness or uncleanness. It is therefore their duty, and it is a pleasure to be able to state that this duty is fully recognized by the management of such companies, to thoroughly disinfect their cars and stations at frequent intervals and to exercise the greatest possible care that no persons suffering from contagious disease be allowed admission to their trains.

In order to confer complete authority on the medical officers of railroads, it has been deemed wise to appoint the Medical Examiners of the Pennsylvania Railroad Voluntary Relief Department and the similar officers of the Philadelphia & Reading Railway, the Baltimore and Ohio Railroad Company, and the Lehigh Valley Railroad Company, as special Medical Inspectors to the State Department of Health. The jurisdiction of such officers extends of course only to the trains, stations, car works and yards of the companies. The following appointments have been made under this arrangement:

Pennsylvania Railroad.—Dr. Samuel W. Latta, Philadelphia, chief; Dr. D. W. Nead, Philadelphia; Dr. C. J. Roberts, Philadelphia; Dr. E. C. Town, Philadelphia; Dr. J. L. Bower, Reading; Dr. J. L. Wright, Columbia; Dr. W. T.

Bishop, York; Dr. S. M. Crawford, Harrisburg; Dr. A. T. Poffenberger, Sunbury; Dr. H. B. Westhaeffer, Williamsport; Dr. J. B. Lincoln, Renovo; Dr. S. A. Bonnaffon, Erie; Dr. R. B. Moore, Huntingdon; Dr. H. W. Pownall, Tyrone; Dr. W. B. Dieffenderfer, Altoona; Dr. C. F. Hough, Cresson; Dr. C. W. Banks, Derry; Dr. D. M. Baster, Youngwood; Dr. W. K. T. Sahm, Pittsburg; Dr. J. B. Hilleman, Pitcairn; Dr. J. G. Lemmer, Oil City.

Philadelphia & Reading Railroad.—Dr. Casper Norris, Philadelphia, chief; District No. 1, Office, Columbia Ave. Station, Philadelphia, Dr. F. E. Brister, Dr. Francis S. Ferris; Dr. Morris S. McDowell; District No. 2, Reading, Pa., Dr. Charles A. F. Detweiler, Dr. Albert F. Bronson; District No. 3, Pottsville, Pa., Dr. Thomas F. Heebner; District No. 4, Tamaqua, Pa., Dr. William P. Brothers.

Baltimore & Ohio Railroad Company.—Alpheus Lee Porter, Philadelphia county; Samuel A. Buchanan, Philadelphia county; Elliston J. Morris, Philadelphia county; George P. Weaver, Philadelphia county; W. Warren Weaver, Philadelphia county; Wallace Sellman, Fayette county; Malcolm Harvey Koehler, Fayette county; Harry F. Atkinson, Fayette county; John A. Batton, Fayette county; Harry Jacob Bell, Fayette county; George L. Hatfield, Fayette county; Walter T. Messmore, Fayette county; M. B. Shupe, Fayette county; Howard Koonce, Allegheny county; Albert A. Church, Allegheny county; Grayson R. Gaver, Allegheny county; Frank C. Blessing, Allegheny county; William Cullen Bryant, Allegheny county; Markley C. Cameron, Allegheny county; William Herron Cameron, Allegheny county; W. F. Donaldson, Allegheny county; William S. Foster, Allegheny county; H. R. Hardtmayer, Allegheny county; Alvin Kerr Lyon, Allegheny county; Harold A. Miller, Allegheny county; E. S. Montgomery, Allegheny county; W. D. O'Brien, Allegheny county; Joseph H. Price, Allegheny county; William S. Stewart, Allegheny county; Charles J. Stybr, Allegheny county; William M. Woodward, Allegheny county; William E. Walker, Allegheny county; Daniel King Webster, Fayette county; Everett Minner Baker, Somerset county; John P. Sellman, Lawrence county; Edmund A. Donnan, Lawrence county; Marcellus H. Baker, Somerset county; John S. Garman, Somerset county; William A. Garman, Somerset county; Albert M. Lichty, Somerset county; Bruce Lichty, Somerset county; Henry I. Marsden, Somerset county; Walter S. Mountain, Somerset county; Richard T. Pollard, Somerset county; Smith G. Beatty, Clarion county; John Asger Shoemaker, Clarion county; E. Llewellyn Dickey, Clarion county; Albert M. Hoover, Clarion county; Charles C. Ross, Clarion county; William Denney, Washington county; John N. Sprowls, Washington county; William R. Thompson, Washington county; Joseph M. Timmons, Washington county; Willard L. DeWolf, Butler county; Raymond H. Pillow, Butler county; Samuel E. Ralston, Butler county; Victor F. Thomas, Butler county; Harry R. Wilson, Butler county; Franklin Jacob Evans, Delaware county; Evan O'Neill Kane, McKean county; Thomas L. Kane, McKean county; F. L. Marsh, Westmoreland county; John Q. Robinson, Westmoreland county; D. T. Rees, Bedford county; William A. Shannon, Schuylkill county; John C. Sheridan, Cambria county; Allen W. Urmson, Lawrence county; Oscar M. Richards, Northampton county; W. P. Walker, Northampton county; P. L. Reichard, Lehigh county; H. Y. Horn, Lehigh county; John S. Mack, Lehigh county; J. G. Zern, Carbon county; W. W. Reber, Carbon county; J. B. Tweedle, Carbon county; W. R. Longshore, Luzerne county; Walter Lathrop, Luzerne county; G. S. Wentz, Luzerne county; W. G. Weaver, Luzerne county; H. B. Gibbey, Luzerne county; L. A. Flexer, Schuylkill county; Phaon Hermany, Schuylkill county; W. M. Stein, Schuylkill county; J. C.

of his succession to the powers and duties of the former State Board of Health, in every township and borough in the State.

There is therefore no occasion for rehearsing its provisions in full. The law requires the appointment of local Registrars throughout the entire State. Inasmuch as burial permits are now required throughout the rural sections, thus removing from Pennsylvania the reproach that a human being might be thrust under the ground with no more official record than would be accorded to a dead dog, it is of the utmost importance that these officials should be so placed as to be easily accessible to the people. This has been a task of great magnitude as will be apparent when it is said that more than one thousand have already been appointed and that additions are daily being made to the list. In each case it has been imperative to conduct considerable correspondence in order to determine the character and capability of the applicant, so that it might be assured that he would discharge the duties of the position efficiently and at the same time command the respect of his community and maintain the dignity of the Department and of the Commonwealth.

The compensation of local registrars is thus provided for.

Each local registrar is entitled to be paid the sum of twenty-five cents for each birth and each death certificate, to be paid by the treasurer of the county in which his district is located, upon certification by the State Registrar.

In cities in which the city clerk, health officer or other official acting as registrar receives a fixed salary in lieu of fees no further compensation is to be paid him for the duties required by the act.

It is the duty of the State Registrar to prepare and under the instructions of the Commissioner to print and supply to all local registrars all blanks and forms used in registering, recording and preserving the returns or in other ways carrying out the purposes of the act, and to prepare and issue such detailed instructions as may be required to secure the uniform observation of its provisions and the maintenance of a perfect system of registration.

In pursuance of these requirements, blanks, forms and circulars of instruction have been prepared and issued.

MORBIDITY REPORTS.

The attempt to collect morbidity reports in the case of communicable diseases has been made in several of our larger cities, but in no State has such reporting been made compulsory until now. The Department is desirous to make this report more comprehensive than any heretofore compiled. It has therefore placed on the margin of the postal card which it furnishes to physicians for making their reports a considerably longer list of reportable diseases than is called for in other States at the present time.

At the time of the adoption of the first sanitary code of Pennsylvania, June 18, 1895, but eleven diseases, namely: cholera, smallpox, diphtheria, scarlet fever, typhoid fever, typhus fever, yellow fever, epidemic cerebrospinal meningitis, relapsing fever and leprosy were specified as being dangerous to the public health, and therefore to be placed under the control of the health authorities.

This list might with perfect propriety, in view of the scientific knowledge existent even at that time, have been extended to include a number of other diseases. That it was so restricted was rather due to a subserviency to a public opinion which looked upon all public health measures with suspicion, if not actual disapproval, than to any lack of recognition of the importance of those diseases on the part of sanitarians and physicians.

Public education and appreciation have, however, so far removed these obstacles that to-day the control of an increased number of preventable diseases is not only recognized as desirable, but as required of every Health Department which seeks to perform its work with intelligence and efficiency. The field of preventive medicine has been extended with great rapidity during the past few years. With an ever increasing knowledge of the exact causes and methods of transmission of many diseases has come the development of methods of prevention, and modern sanitation demands that this knowledge be used for public benefit.

An analysis of the specific character of each of the diseases which have been added to the report card will show that each and every one is justly entitled to be placed thereon, and that their importance is not to be denied. A brief review of each added disease and its characteristics, is worthy of attention.

Actinomycosis has recently been brought forcibly to the attention of health authorities by a steadily increasing number of cases throughout the country, occurring frequently in cattle, when it is known as "Big Jaw" or "Lumpy Jaw." Its communicability to man has been unquestionably established.

Anthrax, malignant pustule or splenic fever, exists at this time throughout the United States among sheep and cattle, and is communicable to man with frequently fatal results. The tenacity of life of its specific micro-organism makes it an exceedingly dangerous foe. Numerous instances are on record where infection and death, have resulted in human beings from handling the carcasses or hides of infected animals.

Bubonic plague or Black Death, although ordinarily a disease of the Orient, has within the last few years in a notable instance occurred within the United States. The ever increasing avenues of commerce may afford enlarged opportunities for the repetition of this event. Its enormous fatality makes it of unusual interest.

Chicken pox is of more serious import in the last few years than formerly. While it is without mortality, the frequency with which it has been confounded with the mild type of smallpox which has prevailed at various times throughout the country, makes it important that all cases should be brought to the attention of health authorities.

The identification of the specific bacillus of dysentery and a study of its avenues of elimination, and the possibility of infection of public water supplies, makes this disease rank in importance with typhoid fever.

The communicability of erysipelas has been so fully demonstrated that this fact is in itself sufficient to warrant its notification.

German Measles, Rotheln or Rubella, is of importance for the reason that it is frequently confused with other eruptive diseases, such as scarlet fever and smallpox.

Glanders or Farcy, frequently present in horses, is rare in man. This rarity is more than offset, however, by an almost invariable fatality, and the painful and loathsome character of its lesions.

The report of hydrophobia is sought for the reason that the county authorities are instructed by law to furnish immunizing treatment to persons suffering from the bites of rabid animals.

The discovery of the indispensable part played by the mosquito in the dissemination of malaria, makes the report of this disease necessary in order to definitely plan campaigns for the extermination of these insects.

Measles, although looked upon as an inevitable disease of childhood, is of serious importance. It caused, during the year 1900, more than twice as many

Prevalence of Communicable Diseases.

Owing to the fullness and accuracy of the reports received from physicians of the existence of contagious and infectious diseases, we have for the first time in this State information approaching accuracy on this subject. Taking the diseases in the order of their gravity, not their prevalence numerically, we consider first smallpox.

Smallpox.

During the latter half of the year 1905 the Department supervised the measures for the suppression of this disease or aided the local authorities in stamping it out, at thirty different places in ten counties, comprising two hundred cases.

During the year ending December 31, 1906, there were seventy-three cases of smallpox in the State, of which eight proved fatal.

Fifty of the cases occurred in cities and boroughs and twenty-three in the rural districts. As the rural population is about one-third that of the entire State it follows that smallpox has prevailed to the same extent in the country as in the cities and therefore that there is as great necessity for vaccination in the former as in the latter.

During the first half of the year there were 61 cases as compared with only 12 in the second half. This is attributable to two causes: first, the wide distribution of the seeds of the disease during several previous years and, secondly, the vigorous campaign of vaccination which had been carried on during the latter half of 1895 and the first half of 1896.

During the last five months of the year not a single case occurred in a city or borough, probably owing to the fact that vaccination was more generally resorted to in the towns than in the country.

The distribution throughout the State was quite general, the disease having appeared in the following counties: Allegheny, Blair, Carbon, Chester, Crawford, Delaware, Huntingdon, Lancaster, Luzerne, Montgomery, Philadelphia, Schuylkill, Westmoreland, York; in all, fourteen.

The cities and boroughs in which cases occurred were: Allegheny, Altoona, Chester, Coatesville, Columbia, Hazleton, Lancaster, Lansford, New Kensington, Philadelphia, Pittsburg, Pottsville, Schuylkill, Shenandoah, Sunbury, York; in all, sixteen.

The largest number in any one county was twenty-three, in Allegheny county, twenty-one of which were furnished by the cities of Pittsburg and Allegheny and two by the rural districts. Five of the deaths occurred in Pittsburg.

Next in point of numbers was Lancaster county, in which seventeen cases occurred, six in the city of Lancaster and eleven in the country. But two cases occurred in Philadelphia. Detailed statements will be found in the report of the Division of Medical Inspection.

In view of the extreme infectiousness of smallpox the Department has considered it wise to issue the following circulars of information and instructions to all persons whose duties compel them to enter houses where this disease exists:

"Precautions to be Observed by Physicians, Health Officers, Clergymen and Undertakers in Visiting Premises Infected with SMALLPOX.

"Whenever possible, physicians should visit smallpox cases after making all regular calls for that day.

"If the physician has not been successfully vaccinated within five years, vaccination should be performed before attending such a case.

"The physician should carry in a bag intended for this purpose only, a gown which extends nearly to the floor, fitting close at the neck and wrists and entirely covering all clothing.

"The bag should also contain a hood or protective covering for the hair and a pair of high close-fitting rubbers.

"The visit to the sick room should of course be as brief and as free from unnecessary handling of the patient as is consistent with a proper understanding of the patient's condition.

"A small outer room or hallway in such a house should be set apart for the use of the physician where soap and water, towels and antiseptics are provided for the purpose of cleansing exposed surfaces. Upon entering this room after the visit to the patient, the rubbers, hood and gown should be removed, sprinkled well with Liquor Formaldehydi, U. S. P. or formalin rolled into a compact bundle and placed within the bag into which the disinfectant should be again sprinkled.

"When it is desirable to leave these articles at the house the rubbers may be wiped off with the Liquor Formaldehydi, U. S. P. or formalin and the hood and gown boiled at least thirty minutes, wrung out and allowed to dry before the physician again visits the patient.

"The physician should then thoroughly wash the hands, face and beard, if any, with soap and water.

"The soap should be thoroughly removed and all exposed surfaces including the hair and scalp washed with a solution of corrosive sublimate (Bichloride of Mercury) 1-1000. This in turn may be removed with plain water.

"The mouth and nose should be sprayed with disinfectant solution.

"When health officers are called upon to visit premises infected with smallpox for any purpose they shall observe all the precautions advised for physicians.

"When disinfecting such premises they would best leave their gown and hood in the last room to be disinfected and never under any circumstances shall such protective garments be used in performing disinfection in a case of diphtheria or scarlet fever or vice versa unless they have been thoroughly disinfected with Liquor Formaldehydi, U. S. P. or formalin or have been boiled at least one hour in the meantime.

"They should provide themselves with a number of gowns and hoods and a convenient canvas or leather bag to carry them in.

"A glass stoppered bottle containing Liquor Formaldehydi U. S. P. or formalin should also be carried in the bag for sprinkling infected gowns, hoods and the inside of the bag after such garments have been worn and replaced.

"Clergymen shall not be denied the privilege of answering summons to attend a case of contagious disease.

"They must, however, obtain instructions from the local Board of Health or the local representative of the State Department of Health in case there is no Board of Health, and conform strictly to such instructions.

"In communities having no Board of Health they shall provide themselves with the protective gown, hood, etc., and disinfect subsequently in the manner and form suggested for physicians.

"The undertaker, like the physician and health officer, should provide himself with a leather or canvas bag to be used only for the purpose of carrying protective gowns, hoods and rubbers to be worn whenever such bodies are to be prepared for burial. Such protective covering used by them should be well sprinkled with Liquor Formaldehydi U. S. P. or formalin, rolled into a compact bundle and boiled at the earliest opportunity.

"Upon leaving the premises the disinfection of exposed surfaces should be thorough as detailed under suggestions for physicians."

* Typhoid Fever.

That Pennsylvania stands high on the lists of States having a large typhoid death rate has long been known, but what the actual mortality was no one knew or could do more than make a very wide guess at. This was due to the fact that there was no State system of registration of vital statistics. The larger cities, such as Philadelphia, Pittsburg and Allegheny furnished death rates which were sufficiently appalling, but even from them morbidity statistics could not be obtained.

The scheme of morbidity reports, inaugurated by the Department, on a scale and with a precision never before attempted in any of our States, will enable it to obtain definite results which will be of the greatest value in this particular direction.

Each serious outbreak has been carefully studied and the special measures adopted which the local conditions appeared to demand.

Before the Statistical Staff of the Department was sufficiently organized to be able to depend upon its morbidity reports for prompt information as to the occurrence of communicable diseases in different parts of the State, the plan was adopted of subscribing to county papers in order to keep in touch with the health conditions of the various sections. By this means early information of the commencement of epidemics was often received.

Places where assistance has been rendered on account of typhoid fever were:

Toughkenamon, Chester county; Franklintown, York county; Johnstown, Cambria county; Johnsonburg, Elk county; Franklin, Venango county; York, York county; Archbald, Lackawanna county; Nanticoke, Luzerne county; Arrow, Somerset county; Berwick, Columbia county; Llanerch, Delaware county; Coatesville, Chester county; Clearfield, Clearfield county; Foustwell, Somerset county; Forest city, Susquehanna county; West Chester, Chester county; Pittsburg and neighboring towns, Allegheny county; Hamburg, York county; Palmerton, Carbon county; Abbott township, Potter county; Stewardson township, Potter county; Aleona township, Potter county; Shippen township, Tioga county; Clymer township, Tioga county; Berwyn, Chester county; Devon, Chester county; Stratford, Chester county; Alburtis, Lehigh county; Scranton, Lackawanna county.

For details in regard to these outbreaks and their management reference is made to the report of the Chief Medical Inspector.

Especial attention is called, however, to the epidemic at Nanticoke, where the introduction by the Department of certain new features in the management of such outbreaks was attended by most satisfactory results, and to that at Scranton, where the bacteriologists of the Department achieved the most unusual success of actually discovering the micro-organism (germ) of typhoid fever in the water of one of the reservoirs.

Scarlet Fever.

Scarlet fever has of recent years taken on a much milder type than formerly. Fortunately the name still carries with it a degree of horror which makes it a comparatively easy matter to enforce sanitary precautions when the attack is a pronounced one. The danger of the community occurs in the lighter cases in which the rash quickly passes off, and the patient feels comparatively well. It has unhappily been too much the custom for physicians in deference to the feelings of parents, to call such cases scarlatina, and to convey the impression that scarlatina is a less dangerous form of the disease. This engenders carelessness on the part of the caretakers, which works evil in two ways, one, for the patient, because it leads to relaxing precautions against exposure to cold and against improper diet. Such cases are peculiarly liable to develop inflammation of the kidneys and dropsy, and need even more careful watching in these respects than the severer cases. The other for the public, because it leads to neglect of quarantine precautions, the patient often being permitted to mingle with other children, while the skin is still desquamating (scaling or peeling) a stage in which the disease is most apt to be communicated to others. Owing to the comparatively small fatality attending the affection the local authorities generally feel competent to control it.

The cases in which the Department has been appealed to will be found in the report of the work of the Division of Medical Inspection.

The total number of deaths from this disease during the year have been, ..	577
Of these there were of children under five years of age,	356
From five to nine,	171
From ten to fourteen,	23
From fifteen to nineteen,	11

DIPHTHERIA.

The Free Distribution of Antitoxin.

The Department was scarcely established when communications from Boards of Health and from physicians began to pour in, stating the prevalence of Diphtheria in their respective localities.

Being firmly convinced of the value of the Diphtheria Antitoxin both as a curative and a prophylactic agent, it was early determined that the manner in which the Department could most satisfactorily discharge its duty of protecting our people and especially the children from the ravages of this disease, would be by undertaking the free distribution of that agent for use in families whose circumstances were such as to make the expense of furnishing this agent burdensome.

A system was therefore established the basis of which was the appointment of distributors of Antitoxin at accessible points throughout the State.

Every effort was made to obtain the names of thoroughly reputable and responsible individuals to fill these positions. As a rule it was considered that apothecaries, by reason of the central and prominent location of their establishments and of the fact that they are usually accessible at all hours, would be best suited to undertake the duty. In some cases, however, physicians have received the appointment.

Sealed proposals for furnishing this agent were sent to the two leading producers of Antitoxin in this State, and arrangements were made with the firm

deaths in the United States as scarlet fever. Its pronounced tendency to become epidemic makes its restriction a work of decided necessity.

Mumps is a very communicable disease, serious by reason of the unfortunate sequelae which frequently occur.

The wonderful increase in the number of cases and fatality of pneumonia within the past few years has earned for the disease the title of the "New Captain of Death." Its communicability has been fully established, and the most vigorous measures are required for its restriction.

Puerperal or child-bed fever is due to a specific organism whose presence is so fostered by unhygienic surroundings or the carelessness of attendants that both of these contributing causes should be corrected.

Relapsing fever, although not present in the United States since 1869, exists in other portions of the world and may make its re-appearance here at any time.

The recent wide dissemination of tetanus throughout the United States makes a study of its occurrence particularly important from meteorological and geographical as well as clinical standpoints.

Trachoma is a disease of the eye which occurs with considerable frequency in foreign countries, affecting chiefly those classes of people which supply a very large proportion of our immigrants. It is recognized as a common cause of blindness. The communicability and seriousness of the disease has prompted the United States health and immigration officials to make its existence sufficient ground for the exclusion of those affected. It may, however, develop after entry, and in order to prevent its dissemination, should be recognized and brought to the attention of the health authorities.

The public health importance of recognizing and controlling cases of trichiniasis is demonstrated by the fact that it is much more widely disseminated disease than is commonly supposed. The existence of the trichina spiralis in the flesh of the swine has seemed to develop with great rapidity within the past few years. The United States Department of Agriculture in 1899 found it present in 41,659 of the 2,227,740 hogs examined. Its presence in food stuffs, its painful character and the fatality frequently accompanying its occurrence in man make it of very grave importance.

The earnest warfare which is beginning to be waged against tuberculosis throughout our country can only be prosecuted intelligently and successfully by furnishing health officials with certain definite information concerning each case. No campaign of education, which is so absolutely essential in this disease, can be conducted without it. There is no disease which offers greater opportunities for the application of sanitary knowledge or the careful prophylaxis of which promises greater benefits to the State.

The importance of reporting whooping cough may be recognized from the fact that it caused 9,958 deaths in the United States in the year 1900, also that it exhibits a marked tendency to become epidemic among children.

In connection with this matter of reporting communicable diseases, I cannot withhold the expression of the gratification which I have experienced at the hearty and prompt response which I am meeting from throughout the State to the new and somewhat unusual time and attention in the matter of reporting cases occurring in their practice each day.

When it is remembered that in order to properly furnish them for this information it is necessary to furnish entries, in addition to date and signature, it

physician is displaying most commendable public spirit in promptly and thoroughly complying with this requirement.

The value of the aid thus rendered to the Department in its efforts to prevent the spread of such diseases cannot be overestimated. As an indication of the readiness of the members of the medical profession to do their full duty in this regard unrequited save by the reward of a good conscience, it may be stated that during the month of November, the first month after the cards had been distributed, 4,508 cases were reported to this office, from physicians in the rural districts alone, physicians in cities and boroughs reporting directly to their own boards of health, who, in turn, send in weekly reports to the Department.

The promptness of such Boards in sending in their returns is also gratefully acknowledged.

The following is the text of the regulations governing this subject, a copy of which has been furnished to every physician in the State.

COMMONWEALTH OF PENNSYLVANIA.

Department of Health.

*Rules and Regulations Governing the Report of Communicable Diseases:

Under the provisions of the Act of Assembly of the twenty-seventh day of April, A. D. one thousand nine hundred and five, "to protect the life and health of the people of the State of Pennsylvania."

Section 1. All physicians practicing within the limits of the State shall make an immediate report of every case occurring in their practice of the diseases hereinafter specified, if occurring in a city or borough, to the Secretary of the Board of Health of such city or borough, and if occurring within the limits of a township, to the County Medical Inspector of the county in which said township may be located, and also to the Department of Health at Harrisburg.

Physician to report certain diseases.

Section 2. The report of each and every case of any of the diseases hereinafter enumerated shall be upon a standard form and shall contain the following information: Date of report, full name of patient, occupation (if any), nativity, age, sex, color and address of patient, including, if in a city or borough, the name of the street and house number, the name of city or borough and county, and if in a township, the post-office address of the patient, name of township and county, the name of the disease, date of onset of the disease, name and occupation of the householder in whose family the disease may have occurred, number of children in said household attending school, name of school or schools and name and address of the physician making the report. In the case of townships the above required reports shall be made upon a standard duplicate postal card, furnished by the Department of Health.

Form and contents of report.

Section 3. Each and every case of small-pox occurring in the practice of any physician, and which may be located in a township outside of a city or borough, shall be reported immediately by telephone or telegraph, by the physician in attendance, to the County Medical Inspector of the county in which the disease may be located, giving the name and address in full, and this notification to be followed by a report on regular postal card blanks provided for

Immediate report of small-pox in townships.

the duty of each and every Board of health within the State, through its president or other duly authorized official, to forward at the end of each week to the Department of Health the forms prepared and supplied for the purpose of the following named diseases: Small-pox, scarlet fever, diphtheria, and typhoid fever. The report of said city or borough during the week ending on any fraction of a month, so that the first weekly report shall be made on with the first day of the

Boards of Health of cities and boroughs to report.

crease of population and the growth of industries, had resulted in a degree of contamination of its water supplies alarming to the highest degree. Every effort to secure legislation to remedy this evil however had been thwarted by the manufacturing and commercial interests until the Legislature of 1905, under the stimulus of the great epidemic at Butler in 1903-1904, passed the act "to preserve the purity of the waters of the State," which confers upon the Commissioner of Health in connection with the Governor and the Attorney General ample powers for gradually eliminating the sources of pollution and saving thousands of valuable lives. The occurrence of two serious epidemics of typhoid fever during the past year strongly accentuates the pressing necessity for this law, and the 24,471 cases actually reported to the Department, convey an idea of the pecuniary loss to which the State is annually subjected by the prevalence of this one preventable disease.

The policy of limiting the State Department to powers of an advisory character only, until the actual presence of an epidemic threatens everybody in the community, so vividly shown to be suicidal in the extreme at Butler in the memorable epidemic of 1903-04, ceased with the enactment of the law of 1905. Therefore, in the prosecution of the work thereunder, precedents have had to be established. It has been pioneer effort.

Before the Department of Health can pass judgment upon any particular water-supply, full information as to the source of supply, capacity, the manner of collection and the means of distribution is indispensable. With respect to the source, the dangers of pollution to be guarded against and the means necessary to prevent such pollution must be studied. The capacity of the water supply must receive careful attention, for where a supply may be altogether good but at times insufficient, consumers may be frequently compelled owing to shortage to resort to private wells and neighborhood springs and other sources that are polluted. Moreover, the interests of the public health require that there should be provided ample facilities for quick drainage or shutting off any part of the system which may be found to be infected. Again, a filter may amply purify a water under ordinary conditions but during a fire the speeding up may be at a rate entirely beyond the purifying capacity and thus sewage polluted water may be furnished the consumers or direct recourse may be had to raw creek water for emergencies. Both of these dangers must be guarded against.

The policy which the Department has inaugurated is designed to carry out the title of the law and not only to preserve but to restore the purity of the waters of the State, by requiring the purification, as rapidly as can reasonably be effected of all sewage effluents before they are permitted to enter streams or other bodies of water.

In a municipality whose borrowing capacity has been about reached, the erection of sewage purification works is thus temporarily prevented. However, it is the policy of the State, set forth in the permit, to require this municipality, or any other, in extending its sewers, to make such extension in compliance with plans contemplating treatment works in the future.

A town should obviate the making of a petition every time a petty sewer extension is contemplated, by the submission in the first instance of a general application for sewer extension, involving the question once for all of State policy for that particular municipality. State approval under these circumstances implies careful consideration of the problems involved.

The immense proportions of this undertaking can only be comprehended by those who have taken the trouble to study it carefully and seriously. Hence

the necessity for a thoroughly equipped corps of sanitary engineers, trained in those branches of the profession which especially concern the protection of the public health. Such men cannot be had at call. Our chief engineer is therefore educating picked men who will be able to discharge such duties intelligently and efficiently.

In the event of the outbreak of an epidemic of typhoid fever or epidemic dysentery, it becomes the duty of the chief engineer to institute an investigation in order to determine whether any polluted public water supply is responsible for its occurrence. Should there be reason to suspect this to be the case, it may become necessary for him to be detailed to visit the infected region with an adequate force of assistants and discover the sources of pollution and institute proceedings for their removal. The safeguarding of the State against that serious scourge, typhoid fever, is therefore placed in his hands, under the direction of the Commissioner of Health.

The detailed statement of the work of this Division will be found later in the report.

Water Supply Commission.

The State Water Supply Commission, of which the Commissioner of Health is a statutory member, and the Department of Health necessarily work along cognate lines and are capable of rendering each other valuable assistance.

Recognizing this fact I have made it my duty to attend its meetings regularly and to keep in close touch with it. It is pleasant to be able to state that we are earnestly co-operating for the accomplishment of our common end.

All applications for permits for the incorporation of companies for furnishing water supplies are referred to the Department of State and from that Department to our own, in order that the applicants may be notified what the requirements are to which it will be necessary for them to conform, before the same can be granted.

Meetings of the State Quarantine Board.

The Act of June 5, 1893, establishing a State Quarantine Board for the Port of Philadelphia named the Secretary of the State Board of Health as one of the members of said Board. This was by reason of the fact that the Secretary was at that time the executive health authority of the State.

The Act of April 27, 1906, "creating a Department of Health, and defining its duties and powers," declares, Sec. 14, that "the Commissioner of Health, in addition to the powers conferred by this act, shall have all the powers conferred, and perform all the duties heretofore imposed by law upon the State Board of Health, or any member, committee or officer thereof, including the Secretary."

The Commissioner therefore became ex officio a member of the Quarantine Board, and embraced the first opportunity to attend a meeting of the same, and acquaint himself with his duties in that connection.

One of the most important matters which the Board was called upon to consider just at this time was the serious outbreak of yellow fever in New Orleans and other southern ports.

The evidence that the yellow fever mosquito (*Stegomyia Calopus*) may be carried long distances in seagoing vessels is incontestable.

It has also been demonstrated that it can be carried to a considerable distance by the wind, as for instance in 1871-72 when quite a number of cases of yellow fever occurred at the old Lazaretto above Chester and the disease was communicated to two persons on Darby Creek, two miles distant.

The prevalence of the fever for many months at a time in Philadelphia during the colonial period is sufficient proof that this insect can breed in the waters of the Delaware.

It is also quite conceivable that it might be transported in the effects of passengers over railroads. In view, therefore, of the epidemic prevailing at New Orleans, as early as August 1st, 1905, Dr. Richard A. Cleemann, President of the Quarantine Board, was communicated with suggesting the advisability of considering the possibility of the mosquito infected with yellow fever finding its way into Philadelphia, as also Dr. John Guiteras, President of the Board of Health of Havana, then temporarily residing in New Orleans, in order to observe the progress of the epidemic and suggest precautions against the introduction of the infected mosquito into Cuba, making inquiry as to the best agents for exterminating mosquitoes in the holds of ships and in railway cars. On August 2nd an inquiry was addressed to Surgeon General Weyman, of the United States Public Health Service in order to find out what precautions were being taken to prevent infected persons or material from leaving the State of Louisiana.

A special meeting of the Quarantine Board was held a few days later at which it was determined to examine fruit vessels coming up the Delaware in order to determine whether they were bringing mosquitoes of any kind into the port of Philadelphia. By the kind courtesy of The Academy of Natural Sciences of Philadelphia, a skilled entomologist of that institution was detailed to make such inspection, but no mosquitoes were discovered.

Correspondence was had with Dr. Quitman Kohnke, Health Officer of New Orleans, on the subject, the attention of the latter having been attracted to the precautions taken in Philadelphia. This officer suggested the placing of barrels of water on the wharves where fruit vessels land in order to afford an opportunity for the discovery of the mosquito larvae, as had been successfully done in New Orleans.

The quarantine officer in Philadelphia, Dr. Henry D. Heller, was at once put in possession of this information, and the additional suggestion was made that if there were vessels in quarantine large tubs of water should be placed either in the hold or on deck for the same purpose. No stegomyiae however were discovered.

In consideration of the possibility of the introduction of this insect by the railway transportation, Dr. Samuel W. Latta, Chief Medical Examiner of the Pennsylvania Railroad Company was approached, in order to determine whether that company was taking precautions to prevent such an occurrence, and it was found that appropriate orders had been issued to the medical staff, together with a circular on the "Diagnostic Symptoms of Yellow Fever." It was also stated that the Pennsylvania road was "not receiving passengers, freight or express matter from the infected district."

The possibility of Pittsburg as a port of entry for the dangerous mosquito having been suggested, Mr. G. Wash. Moore, Superintendent of Health of that city, was applied to for information as to what precautions their Department was taking against either yellow fever patients or the *Stegomyia* being brought into the State on boats landing there, coming from the lower part of the Mississippi.

He replied by wire that they had an officer on board all boats arriving from southern points and that no passenger was allowed to land until thorough inspection had been completed.

It will thus be seen that all those who were in any way responsible for preventing the introduction of this dangerous insect were alive to the possible dangers of the situation and that no steps which modern science could suggest to avert this peril were neglected.

The State Medical Council.

By reason of the acts above referred to the Commissioner takes the place of the President of the former State Board of Health as a member of the State Medical Council to which is entrusted the power of granting licenses to practice medicine.

The State Dental Council.

In virtue of the Act of May 7, 1907, regulating and defining the powers and duties of the Dental Council, which fulfils the same function for practitioners of dentistry he is also a member of that body.

POLLUTION OF THE DELAWARE RIVER.

Tri-State Conference on Methods for its Prevention.

Convinced that the pollution of the Delaware river was a serious menace to the health of Philadelphia and other towns situated on that stream, early in 1906 I deputed Mr. F. Herbert Snow, Chief Engineer of the Department, to meet the Sewerage Commission of the State of New Jersey sitting at Atlantic City, and inform that body that the Department was prepared to confer with it in relation to the possibility of joint action to prevent such pollution.

On February 19th a conference took place between Mr. C. W. Fuller, Chairman of that Committee, and myself and it was determined to arrange for a conference between the Governors of New Jersey and Pennsylvania, the Chairman of the N. J. Sewerage Commission and the Health Commissioner of Pennsylvania, to take the whole subject into consideration. Such a meeting took place in the city of Philadelphia, March 10th, 1906, and was attended by the Governor of New Jersey, Hon. Edward C. Stokes; the Governor of Pennsylvania, Hon. Samuel W. Pennypacker; F. H. Snow, C. E., Chief Engineer of the Pennsylvania Department of Health; Maj. J. C. Sanford, U. S. A., in charge of the improvement of the Delaware river; Dr. Charles B. Penrose, Member of the Advisory Board of the Pennsylvania Department of Health, Mr. Arthur E. Brown and myself, and the policy of purification was recommended and a further meeting determined on, at which a representative from the State of New York should be invited to be present. As a result of this conference, the Governor of New Jersey sent a message to the Legislature of that State in relation to investigating the question of the pollution of the Delaware, and in pursuance of the recommendation of the Governor the Legislature adopted a resolution authorizing the State Sewerage Commission to investigate the matter.

On September 14th, 1906, a further conference took place of which the following are the minutes:

Minutes of meeting at the Chalfont Hotel, in Atlantic City, on September 14th, 1906, between officers of the State Sewerage Commission of New Jersey, the Department of Health of New York State and the Department of Health of Pennsylvania.

There were present Col. Charles W. Fuller and Mr. Harry M. Herbert, members of the State Sewerage Commission of New Jersey; Dr. Eugene H. Porter, Commissioner of Health; Theodore Horton, Chief Engineer, and A. H. Seymour, Secretary of the State Department of Health of New York; Hon. Samuel G. Dixon, Commissioner of Health; F. Herbert Snow, Chief Engineer, and Wilbur Morse, Secretary to the Commissioner, of the State Health Department of Pennsylvania.

Col. Fuller was chosen Chairman of the meeting and Mr. Morse Secretary.

The Chairman, for the purpose of setting before the meeting what had been done in the State of New Jersey, submitted the following statement:

"The State Sewerage Commission since its creation in 1899 has pursued a uniform policy of requiring purification in all cases of installation of sewerage systems in the Delaware valley. There are now plants at the following places: Newton, Burlington, Moorestown, New Lisbon, Collingswood, Haddonfield, Asyla, Woodstown and Vineland.

"Permission to discharge sewage until purification be required has been granted to Millville, Woodbury and Bordentown. Of these, notice has already been sent to Millville that purification will be required in the immediate future. A plant is now being constructed at Merchantville on the installation of a new system.

"In addition to these places there are from forty to forty-five places in New Jersey in the Delaware water-shed which are present sources of pollution of the Delaware river.

"The State Sewage Commission is at the present time conducting a sanitary inspection of all these places. This inspection has been started very recently and complete reports have been made in only six instances. In four of these, notice has been given to show cause why purification should not be required in the municipality, and in the other two (there being no sewers, but other sources of pollution) requests have been sent to the local authorities to abate such nuisances as do exist. This sanitary inspection will proceed throughout the valley, and such action will be taken by the Commission in each case as may seem proper after receiving the reports. The continuation of this course of action by the Commission will result in the stopping of all pollution in New Jersey and the purification of the sewage discharged from all systems in the Delaware water-shed.

The Commission, for the purpose of reporting to the Legislature of 1907, is collecting statistics, consisting first, of the sanitary inspections above referred to; secondly, all statistics of water supplies, population, sources and kinds of pollution, areas, etc., in accordance with a resolution adopted a few weeks ago, copies of which have been sent to the State Health Departments of Pennsylvania and New York.

"This Commission is desirous of securing the collection of similar statistics in the States of Pennsylvania and New York during the present fall. Its statistics will be at the service of the State Health Departments of Pennsylvania and New York, and it desires the use of similar statistics from these Departments. It also is in favor of a uniform policy similar to its present policy on the parts of these Departments for the purpose of removing the present pollution and preventing the future pollution of the Delaware river in all three States, by the requirement of satisfactory purification of the discharge of all sewerage systems, and the removal from the river or its branches of all other sources of pollution or nuisances.

"Of the forty or forty-five sources of pollution referred to above, the amount of pollution is serious in the following cases: Phillipsburg, Trenton, Bordentown, Riverton, Camden, Gloucester, Woodbury, Salem, Bridgeton and Millville. In the other cases the amount of pollution is small. Of these more important cases, if any provision is made for the disposal of the sewage of Philadelphia, it would be possible, by the creation of a Metropolitan district, to include Camden and Gloucester, and some adjacent territory. In the other cases, small purification plants would suffice, except for Trenton, where a sewer plant would be necessary."

After a full and free discussion of the subject of co-operation and practical work going at the subjects, it was agreed that each State should collect sta-

tistics similar to those being collected by the State of New Jersey, with respect to the Delaware river water-shed within each State and furnish copies of the same to the other two States within the said drainage area.

It was also agreed that the policy of each State shall be to clean up the sources of pollution and to require the treatment of sewage at as early a date as possible. It was further agreed that the interests of the public health demand that where the source of water supply is taken from a stream into which sewage is discharged, treated or untreated, above the water works intake, that the public or private corporations taking such water should be required to filter it in order to maintain constancy of potability and purity of the water supplied to the people for drinking purposes.

The Laboratory Division.

The indispensable necessity of a laboratory to a State Department of Health at the present day cannot be questioned. At the same time it is not the most pressing need in the organization of the Department. Others which are even more practical demand attention first. Moreover the question of expense in the construction and installation of laboratories to meet the exigencies of eight thousand medical practitioners in a population of seven million people scattered over an area of 45,000 square miles is so great as to have led the Department to hesitate to initiate an undertaking of this kind without an assurance of special aid from the Legislature. While the Department has not for one moment lost sight of this important adjunct to our work, it has considered it well to await developments which might aid in the solution of the problem. These have occurred suddenly and unexpectedly in the shape of an offer from the Trustees of the University of Pennsylvania to place so much of their magnificent new medical laboratories in West Philadelphia as may be needed for our work, both in diagnosis and research, at the entire disposal of the State Department of Health.

Whatever hesitation might at first have been felt in regard to accepting an offer which might be construed as placing a State Department under obligations to a quasi private institution was entirely overcome on mature consideration of the official relation which the University has always stood to the State, and of the fact that the State has within the past ten years contributed considerably more than a million dollars to her endowment and work.

The first step following the acceptance of this public-spirited offer was the appointment of official heads to carry on the work of the new division.

Professor Allen J. Smith, M. D., was accordingly commissioned as Director of Pathology, and Dr. Herbert Fox, Chief of the Laboratories of the Department of Health. These appointees having severally accepted the positions named, announcement of the inauguration of the new Division was made to the physicians of the State in the following communication:

"Dear Doctor: Recognizing the great benefits which must accrue to the individual practitioner of medicine and his patients as well as to this Department, in the protection of public health through the operation of a fully equipped laboratory, the Commonwealth of Pennsylvania offers gratuitously to the physicians of the State the facilities of such an institution. The accomplishment of this object has been one of the chief aims of the Department ever since its creation and its consummation at this time is due in a great measure to the spirit of generosity displayed by the University of Pennsylvania in placing at our immediate disposal, rooms well adapted to the needs of the

laboratory. The scope of the work embraced in this Division of the Department is set forth somewhat fully in the accompanying pamphlet. If you desire to avail yourself in any way of the use of the laboratory, kindly indicate upon the enclosed postal the number of outfits desired for the collection of specimens and the same will be provided, together with the blank request cards, addressed envelopes and return wrappers for the packages.

"The outfits will be for your practice outside of municipalities having laboratories for the same purpose.

"Yours very truly,

"November 1, 1906.

SAMUEL G. DIXON.

"P. S.—Requests should be sent in promptly so that the Department may have some estimate of how many outfits will be needed and thereby avoid any unnecessary delay and the purchasing of an over-supply."

The following is the text of the pamphlet referred to in the above letter:

ANNOUNCEMENT RELATIVE TO THE LABORATORY WORK OF THE DEPARTMENT OF HEALTH.

In offering to the physicians of this Commonwealth, through the liberality of the University of Pennsylvania, laboratory facilities for the diagnosis of certain morbid conditions and the detection of obscure sources of disease, it is considered important to briefly outline the character of this work in order that the significance of the results may be justly estimated.

Facilities will be afforded at this time for examinations in the following suspected diseased conditions:

TUBERCULOSIS.—An examination of sputum, pus, exudates, feces and urine for the presence of tubercle bacilli.

The value of demonstrating the actual presence of tubercle bacilli in the sputum or other excretions of a tuberculous patient must be apparent to every practitioner of medicine. In probably no other affection does recovery as well as the safety of the patient's associates depend in so great a degree upon a correct and early diagnosis.

The examination of the sputum, in chronic pulmonary conditions simulating tuberculosis, will often clear up the diagnosis of, for example, unresolved pneumonia, bronchiectasis of non-tuberculous nature, and various degrees of atelectasis.

Chronic cervical adenitis, as is well known, is frequently of tuberculous nature, and the products may carry tubercle bacilli. Even when the adenitis is more acute it may still be tuberculosis. If the true nature of the disease be known, proper prophylactic measures may be taken to prevent the extension of the process to the rest of the lymphatic system. Examination of pus obtained by operative procedures from chronic joint affections, and other similar conditions, often reveals the presence of tubercle bacilli, and supplies a warning of what might follow if the process were allowed to go on and affect the bone. Pus from cold abscesses is commonly tuberculous. Urine from tuberculous kidneys usually contains the infecting organisms, and should be examined when any suspicion exists of this disease in these organs.

About three-fourths of the sub-acute or chronic pleural effusions are tuberculous, and if the lungs be not first involved they may easily become so from extension inward. A specimen of the fluid obtained by aspiration of the

pleural cavity, or a portion drawn in a hypodermic syringe fitted with a suitable sterile needle, will serve as a sample of the exudate for examination. If this contains tubercle bacilli proper surgical or other measures can be adopted. In obscure intestinal affections which do not abate after the use of the remedial measures usually indicated, examination of the feces may show the presence of tubercle bacilli. This, of course, does not apply to cases of active lung tuberculosis when an examination might give a misleading result because of tubercle bacilli in swallowed sputum.

The waging of a successful warfare against this disease depends very largely upon the keen instinct of the practitioner who hastens to verify the correctness of his suspicions by modern laboratory tests.

In cases of suspected tuberculosis of the skin (lupus) correspondence is invited which may determine the best methods to be employed in endeavoring to obtain a pathological diagnosis.

TYPHOID FEVER.—An examination of the blood by the Widal test and an examination of the urine for Ehrlich's diazo reaction.

The difficulty frequently attendant upon a clinical diagnosis of typhoid fever and particularly in cases of the ambulant or walking type is removed in a very large degree by the application of the Widal test. This test consists in adding a culture of genuine typhoid bacilli to a drop of blood serum or a solution containing the dried blood from a suspected typhoid patient. If the bacilli in this mixture lose their motility and are found clumped together in a hanging drop preparation, the presence of typhoid fever is strongly indicated. According to the most reliable observers this test is confirmatory in at least 95 per cent. of typhoid cases. In about 50 per cent. of these positive cases it will be found on or about the eighth day, in 25 per cent. during the second week, in 20 per cent. during the third week, and in the remaining 5 per cent. it may be as late as the fourth week. A negative result in the early stages of a suspected case should be followed by a second examination if the clinical symptoms continue. The conditions which may interfere with the test and which sometimes give a positive reaction, are a previous attack of typhoid fever within 2 years (many times much longer), and the existence of some other morbid conditions, the most prominent of which is probably tuberculosis.

Ehrlich's diazo reaction in the urine is a valuable confirmatory test in typhoid and often appears before the Widal, so that it is advisable when sending specimens of blood for the Widal, also to send samples of the urine. The urine in positive cases will show this reaction usually at the fourth or fifth day of the fever; that is, a few days previous to the appearance of the blood reaction. The characteristic diazo is sometimes found in other affections and the positive results obtained in connection with repeated negative Widal's and the continuation of marked clinical symptoms are strong presumptive evidence of tuberculosis, generally of the acute military type. The diazo usually disappears after the third week of typhoid and persists indefinitely in the case of acute military tuberculosis.

MALARIA.—An examination of the blood for the presence of the malarial plasmodium.

The blood in true malarial fever presents a distinctive parasite, the *Plasmodium malariae*. Malarial fever is transmitted from one human being to another through the medium of the mosquito. A mosquito, biting a person infected with malaria becomes itself infected and after the expiration of from eight to twenty-one days is in a condition to infect any person it subsequently bites. Not only does the distinctive parasite appear in malarial affections, but

each individual type of infection, be it tertian, quartan or aestivo-autumnal, has its corresponding type of organism.

This distinctive parasite appears in the blood in from 5 to 22 days after the bite of the insect, according to the variety of the infection, and may retain its infectious qualities over a long period of time, and in fact may seem to become possessed of a renewed vitality after a more or less extended dormant period following active treatment. From the foregoing statements it is evident that a pathological examination in suspected malarial conditions is most important, not alone in establishing the character of the disease, but also in determining a positive recovery. The administration of quinine may to some extent influence the possibility of discovery the parasite by causing its disappearance from the capillary blood; therefore, in forwarding blood specimens, exact information should be given as to the amount and recency of dosage. It may at times be impossible to determine from the blood smear exactly the type of infection. If this occur it will be reported upon the return card.

DYSENTERY.—An examination of the feces for the presence of dysentery bacilli or the amoeba dysenteriae.

The differentiation between the bacillary and amoebic forms of dysentery on account of the sequelae which frequently follow the latter type, is a matter of importance to the medical practitioner. The sequelae, among which a liver abscess is the most common and serious, may be watched for when the existence of amoebae in the intestines has been demonstrated. The method of elimination of the infectious material and the possibility of contamination of drinking water by this material, makes the pathological diagnosis likewise a particularly important one from the standpoint of public health.

It usually requires several days to complete the tests for these organisms, especially the bacillus of dysentery.

PARASITIC INTESTINAL DISEASES.—An examination of feces for the presence of characteristic parasites of their own.

A verification of a suspicion of the presence of intestinal parasites, by an examination of the fecal discharges, must of necessity relieve the doubt in which many cases of indefinite intestinal troubles are held when only clinical symptoms are considered.

The object of this examination is to determine the presence of animal parasites or to diagnose the nature of the parasite when it is known to exist. So in the case of some severe anemias the diagnosis might be cleared up by finding the ova of the *Anchylostoma duodenale* (*Uncinaria*.)

This too has a bearing upon the meat and fish supply of the patients, since some worms, especially tape worms, are transmitted by infected animal foods. If a worm be known to exist and can be obtained, as much as possible should be sent for determination. As the head is usually a diagnostic feature it should be obtained if possible.

MORBID GROWTHS.—An examination of sections of tumors or the products of the infectious granulomata either obtained during life or at post mortem.

By means of microscopic examination of the tissue of a growth it is possible to determine the character of the tumor and to indicate with a fair degree of certainty its benign or malignant nature.

Sections to be sent for examination should be cut cleanly (not torn) into sizes that will fit in the bottle supplied in Outfit No. 3. Cutting should include a piece of the margin or capsule of any growth or tissue, as well as a portion of the interior.

PATHOLOGIC FLUIDS.—An examination to determine the specific organisms.

This heading includes specimens of pus, effusions, urine, etc., which are sup-

posed to contain pathogenic bacteria. This would naturally include fluids obtained at autopsies or operations.

In this manner the origin of an infection may be traced and the original focus treated.

DIPHTHERIA.—Delay in the treatment of diphtheria and in immunization against it so frequently mean disaster that the application of remedial measures should not be delayed for the purpose of securing a pathological diagnosis. The immediate administration of antitoxin, which may always be secured free of charge to the indigent from any one of the Department's distributors, should be paramount to any confirmatory laboratory diagnosis which may require several days to secure.

For this reason diphtheria has not been included in the list of morbid conditions previously mentioned in this pamphlet for which laboratory examinations will be provided.

To shorten the quarantine period for diphtheria from 21 to 14 days, physicians may take advantage of nearby laboratories, whereas, the time consumed before the physician can receive a report, makes it impracticable for the Department to invite the sending of specimens for this purpose.

DESCRIPTION OF OUTFITS.

The following outfits have been prepared for forwarding the above mentioned specimens to the laboratory:

Outfit No. 1.—For taking blood specimens for malaria. This consists of two glass slides and a needle in a box.

The directions for preparing the blood will be pasted on the box. A wrapper to be used for mailing the box to the laboratory will be found beneath the original wrapper as sent from the Department of Health.

Outfit No. 2.—For sending blood for Widal test in typhoid fever.

This will consist of a paper slip upon which blood drops are to be sent. Instructions will be found with the outfit, and envelope for mailing to the laboratory will be found within the original wrapper as sent from the Department of Health.

Outfit No. 3.—For sending specimens of urine for diazo or bacteriological examinations, feces, pus, exudates or pieces of morbid growths.

This consists of a sterilized wide mouthed bottle, in a wooden box. Instructions will be found pasted on the box. A wrapper for mailing to the laboratory will be found within the original wrapper as sent from the Department of Health. Sections of tumors should be covered with 4 per cent. solution of formaldehyde, and, if this is not obtainable, with pure alcohol (not wood alcohol). If it be necessary to send larger sections of morbid growths than can be accommodated in the small bottle, they should be packed in suitable jars which can be tightly closed, covered with either of the same solutions, carefully packed in wooden boxes and forwarded to the laboratory by express.

Request cards, to be returned with each specimen, will be furnished with the supplies. No specimen will be examined unless a request card is properly filled out and forwarded. If there be any interesting clinical features associated with the case which cannot be fully set out on this card, it will be appreciated if they are supplied at the same time, and correspondence is invited upon all subjects relating to the pathological work as outlined.

The spaces on the request card and instruction sheet for the number (No. —) are not to be filled in by the physician.

The specimens are intended to be sent by mail. The request card is to be sent to the laboratory, in the envelope so directed, and not included in the package containing the specimen. All additional information or questions may be included in this envelope.

In addition to the above mentioned, examinations of the following will be made:

WATER.—A bacteriological examination for the presence of sewage bacteria and a count of the total number of bacteria per cubic centimeter in the water and a chemical examination of its general characteristics.

MILK.—A bacteriological examination for the presence of pathogenic bacteria and a count of the total bacteria per cubic centimeter.

BUTTER.—A bacteriological examination for the presence of pathogenic organisms.

As the examinations of the last three substances will require special information relative to the circumstances and surroundings under which specimens are to be collected and transported, application for the same should be made to the Commissioner of Health, at Harrisburg, upon receipt of which definite instructions will be forwarded to the applicant.

The valuable aid which will be extended to the Medical Profession in the matter of diagnosis is of course only a portion of the work which it is now proposed to do in these laboratories in the name of the State. Original researches have already been inaugurated, especially in the study of the tubercle bacillus, and the possibilities of the discovery of an immunizing agent against the ravages of this disease. Others are projected, and it is hoped that results will be reached which will add lustre to the University and credit to the State.

Up to the present time numerous examinations have been made of blood by the Widal test, of drinking water, of sputa for tubercle bacilli, of wound dressings and of butter. All work of this kind is now being systematically and constantly done.

Diagnosis can now be worked out promptly and satisfactorily. We are still somewhat handicapped in the way of animal inoculations, the cages ordered by the Department not having been yet delivered, while the University on its side is not prepared to furnish them in sufficient numbers for constant use.

The detection of the *Bacillus Typhosus* in samples of water sent from a Scranton reservoir, during the present epidemic, speaks volumes for the skill and painstaking industry of Drs. Fox and Rivas.

MOSQUITO EXTERMINATION.

The part taken by the member of the Mosquito family known as the *Stegomyia Fasciata* or *Culex Calopus* in the communication of yellow fever from one human being to another has already been alluded to. While, however, past experience shows that this variety may live and propagate in our climate during the summer months, as testified by the terrible epidemics of that disease which earlier visited Philadelphia, yet it is well known that it cannot survive our winters. Hence we need never dread the spontaneous appearance of the infection. It must always be imported. Far otherwise is it with the variety known as *Anopheles Maculipennis*, the host of the malarial parasites of *Plasmodium Malariae*.

This insect we have always with us, and as it has been proved beyond the shadow of a doubt that it is responsible for the propagation of malaria, its extermination becomes one of the pressing duties of health authorities and especially of State health authorities. While Pennsylvania as a whole is comparatively free from malaria, yet there are sections where the disease is noticeably prevalent.

It therefore became imperative to make a survey of the State in order to determine just where the breeding places of mosquitoes are to be found and especially of those of this particular species. This done, it will be possible to

commence operations in co-operation with local communities and individual landholders to destroy the larvae of these insects.

With this object in view we secured the services of Dr. H. L. Viereck of Philadelphia, who has had a large experience in this field in the state of New Jersey, and Mr. J. Irwin Zerbe of Philadelphia, early in the month of June, 1906, and commissioned them to visit such localities as had the reputation of being infested with these pests, determine their character, and carefully investigate the supposed breeding places and report on the means necessary to exterminate them in each particular instance.

A careful survey of infested regions to the number of thirty-seven was accordingly made and recommendations for the elimination of the pests in each instance were made. The breeding places consisted of marshes, stagnant streams and pools, old dams and reservoirs, wet meadows and, in many instances, abandoned canals.

In view of the untold billions of these insects, the proposal of their extermination is usually received by those who have given no thought to the subject with a smile of pitying incredulity. It must be remembered however, that as their number is legion, so the destruction of a single larva means the prevention of thousands in a single season. As England has demonstrated, thorough drainage will in time do much to rid a country of their presence, although Koch and many others are of the opinion that the use of quinine is largely responsible for the diminution of malaria in European countries. As the wonderful results of the labors of the Medical Staff of the U. S. Army in Havana, following out the discoveries of Dr. Carlos J. Finlay, Chief of the Department of Health of Cuba, have shown, it is possible to greatly reduce their numbers by direct attack. The methods necessary for their extermination will be found detailed in the circular of this department on the subject. They are in brief:

1. Antilarval measures,
2. Mechanical defences,
3. Prophylactic quininization.

There are two entirely distinct lines of advance in this warfare. One is directed against the insect itself. The other, against the supply of virus on which the insect depends for its capacity of conveying the infection. This supply is found in the bodies of human beings suffering from malaria. The weapon of attack in this instance is the drug, quinine, and its use for this purpose is called Quininization. One of the most extensive and scientific campaigns against the *Anopheles* has been that conducted by the French government in its Algerian colonies. The systematic administration of quinine in prophylactic doses to all the infected inhabitants of a malarial region has formed an important part of their system of attack. Quinine is furnished gratuitously to the poor for this purpose and the railway companies furnish it to their employees and their families. The treatment begins about the end of June and continues until the end of October. The average dosage is four-and-a-half grains for an adult and two-and-a-quarter grains for a child, daily. In this portion of the operation it will be necessary to enlist the active co-operation of the family physician.

As will have been noticed, thirty-eight different centres widely distributed over the State, often with several subsidiary breeding places have been examined. In each the especial mode of treatment required has been indicated. In many instances the operations needed in the way of drainage and cleaning of ragged edges of ponds have been at once undertaken. In every case the visit of the investigators has been warmly welcomed and co-operation has been promised. Many of course, as for instance those in the Wyoming valley, will require

extensive drainage operations which must occupy years, but it is surprising to find on reading the recommendations of the inspectors how comparatively small an outlay both of time and money will be needed to permanently rid many a neighborhood of a long standing menace and annoyance.

In considering the question of expense, it must be borne in mind that every acre of swamp land and marsh reclaimed from occupancy by mosquitoes as a breeding ground is also an acre added to the uses of the husbandman, the horticulturist or the landscape gardener.

Good honest work in the way of filling of holes, draining and the freshening of the borders of ponds should therefore be inaugurated at once where practicable, petrolization being used only for immediate relief in emergencies or where drainage seems to be impossible. Oiling must be regarded only as a makeshift.

VACCINATION.

The law of June 18, 1895, makes it the duty of the health authorities of municipalities to furnish to principals or other persons in charge of schools, and to physicians the necessary certificates or blanks for the uses and purposes as set forth, and required in Sections One, Eleven and Twelve of this Act.

Section Twelve just referred to provides that "all principals or other persons in charge of schools as aforesaid are hereby required to refuse admission of any child to the schools under their charge or supervision, except upon a certificate signed by a physician, setting forth that such child has been successfully vaccinated, or that it has previously had smallpox."

The classes of quasi-municipalities known as townships except in a comparatively few instances are not provided with health authorities of their own. Hence this duty devolves upon the State Department of Health, which, in default of any other, is the *de facto* health authority of every such municipality. It was therefore the duty of the Department, especially in view of the fact that smallpox had been prevailing to a very serious extent throughout the State for the past few years, first, to prepare the necessary forms and blanks for carrying out the requirements of the law, and secondly, to place these in the hands of principals and other persons in charge of schools and in the hands of physicians.

Owing to the unfortunate prejudice existing in the minds of a small minority of the community against vaccination, shared by an extremely limited number of physicians, a few of the latter had been persuaded to issue certificates of successful vaccination in the case of children who had not undergone the operation, but had, instead, taken internally a preparation claimed by them to accomplish the same purpose. In order to guard against this manifest and intentional deception, three forms of certificates were adopted, which are as follows:

Form 10.

I hereby certify that on theday of.....190
I vaccinated
AgeAddress
and that on the.....day of.....190 I find a resulting
sore, which in my opinion means a successful vaccination.
.....M. D.
Address

All certificates bearing date after Sept. 15, 1905, must be in above form.

Form 11.

I hereby certify that on theday of.....190
I examined a cicatrix on
AgeAddress
and believe it to be the result of a successful vaccination.
.....M. D.
Address

All certificates bearing date after Sept. 15, 1905, must be in above form.

Form 12.

I hereby certify that on theday of.....190
 I examined
 AgeAddress
 and found well defined cicatrices from small-pox.
M. D.
 Address

All certificates bearing date after Sept. 15, 1905, must be in above form.

It will be observed that the actual presence of the vaccine sore or the vaccine or smallpox cicatrix must be certified to by the physician, thus preventing all subterfuge unless he is willing to affix his signature to a falsehood.

These forms were sent to the Secretaries of all local Boards of Health as models and to Secretaries of School Boards in the rural districts in sufficient quantities for immediate use.

Letters were at the same time addressed to the Secretaries of these bodies calling attention to the requirements of the law, and pointing out the responsibility resting upon them for their observance.

Notwithstanding the fact that upwards of 200,000 certificates of vaccination were issued to School Boards at the time that these circulars were sent, it was not long before requests began to come in for additional certificates. In response upwards of 400,000 have been sent out.

For a considerable time these applications averaged about 1,500 per diem. While it is impossible at this time to furnish definite figures as to the actual number which have been vaccinated since this effort was inaugurated, it is safe to assume that in the neighborhood of half a million children have received this invaluable protection.

It is true that in a few isolated instances determined opposition to the enforcement of this beneficent law has developed.

In the large cities, where a high degree of intelligence prevails, there have been comparatively few to object. For example, the Superintendent of Schools of Philadelphia, Dr. Brooks, has recently declared with reference to the refusal of parents to have their children vaccinated:

"Such cases have been very exceptional, as the large majority of our people believe in the efficacy of vaccination. In all my experience as Superintendent I do not recall half a dozen instances in which parents refused or even strongly objected to the vaccination of their children. Usually I have found them very willing to comply with the vaccination requirement when the matter has been properly explained to them."

As a single instance of the satisfactory manner in which the law has been complied with, the following communication from the Health Officer of Jersey Shore, is quoted.

"Oct. 31, 1905.

"We have in Jersey Shore about 1,100 school children, all of whom have been successfully vaccinated save about 20 who had small pox during an epidemic that swept Jersey Shore three years ago. Added to this there are twenty-two instructors all successfully vaccinated."

This is but a sample of numerous similar communications.

The only class in Philadelphia which have stubbornly resisted have been the negroes. This was to have been anticipated, as the blacks are not only, in the main, ignorant, but full of superstition.

To a certain extent this is also true of the inhabitants of certain remote mountain villages in which opposition has developed.

I should be guilty of an act of injustice did I fail to pay a tribute in passing to the fidelity, conscientiousness and courage of the teachers in every instance in which a controversy has arisen on this matter. At the risk of insult, obloquy and even personal violence these devoted men and women, in many instances young girls, have stood nobly by their posts and rendered implicit obedience to the law, sometimes even setting a noble example to the Directors, who, forgetful of their oath of office and in defiance of the law, threatened to cut off their meagre salaries if they would not admit unvaccinated children to their schools.

Very convincing and encouraging in this respect is the report of the School Superintendent of one of the most important counties of the State, which I have had the opportunity of seeing in advance of publication through the courtesy of the State Superintendent of Public Instruction, Dr. N. C. Schaeffer. This report states that during the past winter fully 90 per cent. of the parents readily complied with the requirements of the law requiring a certificate of vaccination. This fact he considers "speaks volumes for the intelligence of our people." He suggests that it might be well for "those who are so fond of fighting the very hand that is raised to help them, to migrate to those happy countries in the Orient where nobody bothers about modern sanitation or preventive means and where everybody is free to give and free to acquire disease."

He considers that "it would be more to the credit of the people of our Commonwealth if they would erect a monument to the State Commissioner of Health for enforcing the health laws of the State rather than burn him in effigy for doing his duty."

Notwithstanding "sporadic cases of fanatical opposition, the directors of the county, at their annual convention in the fall were practically unanimous in giving their unqualified support to the teachers in their enforcement of the law and in only one instance was any attempt made by a local board to intimidate their teachers to openly violate the law, but the teachers magnanimously refused to become law-breakers." He also announces that the attempt of the female editor of a western anti-vaccination journal to organize a number of anti-vaccination societies and leagues in his county was a failure.

Unsolicited evidence of this kind by an intelligent observer in a position to know the truth is of great value.

In order further to stimulate the performance of vaccination, the offer of free vaccination in the case of children whose parents found the expense to be burdensome was made. As in the case of Antitoxin, sealed bids for the furnishing of vaccine virus were solicited.

I have taken pains to assure myself of the purity of the product and of the adequacy of the means adopted to secure absolute cleanliness and freedom from contamination of any kind.

These establishments are also under the watchful supervision of the United States Government, and subject to inspection at any time by an agent of this Department.

It is gratifying to be able to record the fact that owing to the wholesale vaccination which has taken place in Philadelphia, not a single case of smallpox has been reported in that city of more than a million and a quarter inhabitants, during the year just closing.

The questions of the constitutionality of this law, and of its applicability to townships have been more than once decided affirmatively by the courts of this State. Desirous, however, of obtaining the opinion of the highest law officer of the Commonwealth on the question at the present time, Dr. N. C. Schaeffer, Superintendent of Public Instruction, applied to the Attorney General, the Hon.

Hampton L. Carson, for a decision in the matter. The ruling of that official was as follows:

"It should be understood by everybody that the act of the 11th of June, 1895, entitled 'An act to provide for the more effectual protection of the public health in the several municipalities of this Commonwealth,' is, so far as is necessary to be considered in this connection, in full force, and that its constitutionality has been sustained by the Supreme Court in *Field vs. Robinson*, 198 Pa. State Reports, 638. The twelfth section of this act provides that "all principals or other persons in charge of schools as aforesaid (i. e., public, private, parochial, Sunday or other schools) are hereby required to refuse the admission of any child to the schools under their charge or supervision, except upon a certificate signed by a physician, setting forth that such child has been successfully vaccinated or that it has previously had smallpox.

The authorities, harmonious in all respects and illustrating different phases of the question, establish conclusively the right and the duty of teachers, and all other school officers of whatever grade, to refuse admission to the schools of pupils who do not produce the necessary certificate. Controversy upon that point is idle."

Of even greater importance is the final decision of the Supreme Court of this State as to the constitutionality of the law which I quote in full.

Opinion of the Supreme Court of Pennsylvania reaffirming the validity of the act of June 18, 1895, which requires the exclusion from the public schools of children who have not been vaccinated. Rendered January, 1906. In the Supreme Court of Pennsylvania. *Stull vs. Reber*, January, 1905. No. 63, C. P. Franklin. Filed May 7, 1906. Mitchell, C. J.

"The substantial question in this case is whether the act of June 18, 1905, P. L. 203, requiring the exclusion from the public schools of children who have not been vaccinated is a valid exercise of the police power of the State. It has been twice so decided by this court. In *Duffield v. School District of Williamsport*, 162 Pa. 476, a similar regulation not even enacted by the Legislature, but enforced by the school directors under an ordinance of the city of Williamsport was held valid. And in *Fairfield v. Robinson*, 198 Pa. 638, this very statute of June 18, 1895 was held constitutional. It appears to be thought that because the decision was given in a brief opinion per curiam the subject was not fully considered. But the proper inference is precisely the reverse, that the conclusion was so perfectly clear to the whole court that it did not require an extended argumentative support.

After these two decisions the question ought to have been considered as closed. But we have it raised again with small variations of facts and considerations, none of which are at all material.

On the constitutional question it is said that section 12 of the act contravenes sections 7 and 8 or article 3 of the constitution in that it is local and special legislation, regulating the affairs of school districts. The terms of the act apply expressly to the "several municipalities" of the State and it is argued that they do not include school districts in townships and therefore make an unwarranted distinction in regard to such districts. Whether townships are municipalities within the intent of the act it is not now necessary to consider. Even if not, the separate classification of school districts in cities and boroughs with reference to public health where population is dense and the danger of contagion great, would not be unconstitutional. *Sugar Notch Borough*, 192 Pa. 349.

But the act is in no proper sense a regulation of school districts. It is an act entitled "for the more effectual protection of the public health in the several municipalities of the Commonwealth" and is a general statute on that subject. What bearing it has on schools and school districts is altogether incidental to

them as constituents of the community. The constitutional restrictions on special legislation apply to direct legislation, not to the incidental operation of statutes constitutional in themselves upon other subject than those with which they directly deal. Sugar Notch Borough, 192 Pa. 349.

It is further said that section 12 contravenes section 1 of article 10 of the Constitution, requiring the maintenance of an efficient system of public schools wherein all children above the age of six years may be educated. It is sufficient to say that this article like all others must be construed and applied in connection with other fundamental governmental powers. The schools and school children important as they are, are only fractions of the community and the police power of the commonwealth in the preservation of the public health must if necessity arise sacrifice the less to the greater interest. *Salus populi suprema lex.* If a child manifestly suffering from smallpox in its contagious stage should be excluded from school, it is hardly conceivable that the propriety of such action should be questioned. At what period before or after the outbreak of the disease the right of exclusion should arise is a legislative not a judicial question. As said by our late brother Williams in *Duffield v. School District*, 162 Pa. 476, already cited: "It is conceded that the Board might rightfully exclude the plaintiff's son if he was actually sick with, or just recovering from the smallpox. Though he might not be affected by it, yet if another member of the same family was, the right to exclude him notwithstanding he might be in perfect health, would be conceded. How far shall this right to exclude one for the good of many be carried? That is a question addressed to the official discretion of the proper officers; and when that discretion is honestly and impartially exercised the courts will not interfere." These words should be remembered were written with reference to authority exercised under a city ordinance, and *a fortiori* when the police power of the State intervenes under the authority of a statute its directions are commands that may not be disputed.

It is further argued that sections 11 and 12 of the act should be read together, and the right under section 12 to exclude unvaccinated children should be confined to the schools in the districts mentioned in section 11, namely those in which smallpox is actually prevalent. But this is manifestly not the legislative intent. Section 11 deals with a present and immediate danger, with persons, dwellings and places where the disease actually prevails, and its prohibition includes adults as well as children, vaccinated or not. Section 12 on the contrary is a cautionary and prospective regulation, having in view not the actual presence of the disease, but its appearance in the future. The objects of the two sections are distinctly different.

In this connection the learned judge below found as a fact "that there is not at the time of the filing of this bill, nor has there been for a period of about forty years any person in the said borough of Waynesboro, or within many miles thereof, suffering from smallpox (variola or varioloid)." It is argued that this feature distinguishes the case from those heretofore decided by this court. But the language of the act is general and its intent plain. The legislature may well have had in mind that the good fortune of such a community may not continue indefinitely. Immunity for forty years in the past affords no guaranty of immunity for even forty days in the future if a chance visitor from an infected locality or a borough resident returning from a visit to such locality should bring with him the germs of infection. Section 12 is precautionary and preventative, and it is an old and sound maxim that an ounce of prevention is worth a pound of cure.

There is one hardship in the twelfth section that may deserve consideration with a view to a possible remedy. The court below found as a fact "that occasionally it is beyond the power of children of school age as well as adults to be

vaccinated, although they may not previously have had smallpox nor previously been vaccinated; that even repeated attempts to perform the operation of vaccination upon such children or adults is without effect and vaccination will not take. In such cases vaccination is not successful and a physician cannot certify that such child or adult has been 'successfully vaccinated.' The health authorities, State or local might well consider whether they have power to make a regulation as to what should be deemed a successful vaccination or its equivalent; whether the ratio of such immune children is of sufficient importance to justify the exercise of such power if possessed, and whether such regulation would be undesirable as affording opportunity for the evasion of the statute. The latter however are medical and administrative rather than judicial questions.

Lastly it is argued that construing section 12 as we have done it authorizes a trespass upon the reserved rights of the individual which are beyond the reach of even the police power. Vaccination, it is said, is the infliction of a disease, cowpox, on the subject and if that can be done irrespective of his consent then the next step may be to require submission to inoculation with antitoxin or serum for diphtheria, tuberculosis, cancer, etc., and we have rather a dismal picture of the possible consequences. It will be time enough to consider such matters when they arise. At present the vast preponderance of opinion among intelligent and educated people, under the guidance of the best medical authority is that vaccination is a highly useful ameliorative, if not always a preventive, of one of the greatest scourges that have in past times afflicted humanity, and that the regulation of it by statute is not only a justifiable but a wise and beneficent exertion of the police power over the public health. When the Legislature goes beyond that into new or more debatable fields, it will be time enough to consider the limits of its power.

One expression in the opinion of the court below, and in some of the cases cited in the argument requires a passing note. The act is not a penal statute. It is a broad general act relating to the health of the whole population of the Commonwealth. It is not therefore to be construed or administered by the rigid technical rules applicable to penal laws, but fairly according to its intent, neither narrowing it to the letter, to the exclusion of cases clearly within such intent, nor stretching it beyond its legitimate scope to cover matters not clearly meant to be included. It is an act touching very closely common rights and privileges and therefore specially requiring a common sense administration."

Decree Affirmed.

STATE OF PENNSYLVANIA } ss.
EASTERN DISTRICT }

In this connection it must be borne in mind also that the Supreme Court of the United States has recently handed down a decision, in a case presented from the State of Massachusetts, that a law making vaccination compulsory in no way contravenes the Constitution of the United States. So that the judiciary both of the nation and of the State have declared themselves squarely as supporting the validity of such acts.

The opponents of the law have been at great pains to circulate reports of the injurious and even fatal effects of vaccination in order to arouse the fears and excite the passions of parents whose children were required to be vaccinated. As a rule these stories are fabrications out of the whole cloth. I offer two sample cases.

In October 1905 accounts appeared in many of the papers to the effect that Mahlon Edwards, of Martinsburg, Pa., had died as the result of vaccination.

Inquiry was at once made of Dr. Tobias Campbell, of Martinsburg, the boy's physician, which elicited the following telegraphic reply: "Dr. Tobias Campbell, of Martinsburg, Pa., attended Mahlon Edwards, who died Sunday, October 8th, of acute peritonitis. He was vaccinated November 28, 1904, and he had a typical result and was not vaccinated this year at all. The statement in the papers is absolutely incorrect. Tobias Campbell, M. D."

In November of the present year the statement was widely disseminated that a child named L——— B———, Lisborn, Cumberland county, had died as a result of vaccination. Dr. Harvey B. Bashore, County Medical Inspector for that county, was commissioned to investigate the truth of this statement. The attending physician, Dr. Mowery, of Lisborn, stated that he vaccinated the girl November 3rd. On November 30th, four weeks after the vaccination, he was called to see her and found her suffering from tetanus, of which she died the following day. The vaccination had run a perfectly natural course. The tetanus was due to a wound of the hand received about a week before death.

In the month of November, 1905, a case of tetanus was reported in the son of a Justice of the Peace at Turnpike, York county. It was alleged that this case was developed by vaccination. The County Medical Inspector of York county, Dr. I. C. Gable, was therefore instructed to investigate the circumstances. His reply was "Whatever may have been the cause of death, vaccination was no contributing factor either primary or secondary."

It is not denied that a vaccination sore like any other slight wound may become infected by the germ of tetanus if ordinary care is not taken. But in view of the fact that in the neighborhood of half a million children have been vaccinated during the past year and not a single well authenticated case of that disease has been traced to the operation, it must be conceded that this occurrence is of such extreme rarity that it may be entirely ignored in considering the question from a practical standpoint.

In order to furnish reasonable persons, whose faith in vaccination has been shaken, with arguments in its favor, and also to call attention to the precautions which should be adopted in performing the operation, the following circular has been issued and widely circulated:

VACCINATION.

Smallpox is no respecter of persons save those who maintain immunity to it by vaccination, re-vaccination or the infection itself.

The only means of preventing this loathsome disease is vaccination and re-vaccination; the disease never gaining a foothold in a country or community where its people have observed this precaution.

The history of countless epidemics of smallpox in cities in various parts of this country and abroad show that vaccination has been the all important factor in its suppression.

The following is merely an example of many instances of a similar nature: "At Gloucester, England, in 1895, after eight years of practical abandonment of compulsory vaccination, that is to say, of neglect on the part of the authorities to enforce the law, an epidemic of smallpox occurred in what was practically an unvaccinated community. The cases increased at such a rate that great alarm was felt and extensive measures were taken for general vaccination. In the closing weeks of 1895, 31 cases occurred. In January 28 more were reported. In February the number increased suddenly to 146, and during March to 644. Toward the last of that month, the authorities gave directions for enforcement of the law, and work was begun; but during the following month, no

less than 744 cases occurred. During the last days of April, a committee undertook general vaccination of the city, and within a very few days, every house had been visited; by the end of June the city had been converted from a practically unvaccinated to the best vaccinated city in the country. Nearly 36,000 persons were operated on; the epidemic began at once to decline, and before August had disappeared. Nearly 450 persons, however, had died, and 1,600 others among the survivors bore the usual lasting evidence of the disease in their faces.

As showing the influence of re-vaccination, the following figures from a study of the statistics of the Sheffield epidemic are presented:

Rates of attack per 1,000 persons.

Persons not vaccinated,	94
Persons once vaccinated,	19
Persons twice vaccinated,	3

Death-rates per 1,000 persons.

Persons not vaccinated,	51
Persons once vaccinated,	1
Persons twice vaccinated,	0.08

Similar facts are yielded by investigation of all epidemics where there is a large class of vaccinated and another of unvaccinated persons, and yet anti-vaccinationists still agitate and find sympathetic listeners to their arguments." (Practical Hygiene—Harrington P. 759.)

Such are the invariable results that follow proper vaccination and re-vaccination.

Laboratory research has conclusively proven that glycerin exercises a preservative action upon vaccine virus and in time destroys the vitality of bacteria.

Doubtless the glycerinated lymph in hermetically sealed glass tubes is the most satisfactory product in use at the present time.

The emulsion should be at least two months old and its use limited to the following two months.

With such virus, and a proper surgically clean scarification on a clean arm which is kept clean, without interference to the resulting sore or scab, a successful result is almost sure to be obtained.

This of course implies that the operators' hands and instruments should be surgically clean as well as the field of operation.

The part should be prepared (preferably the left arm if the person is right handed) by thorough washing with soap and water—rubbing sufficiently to produce a slight surface redness—after which the part should be rinsed with boiled water and then by alcohol.

If the subject be a male, scarify over the insertion of the deltoid; if a girl, higher up near the shoulder or on the leg if desired.

The lymph should be forced out of the tube upon the disinfected skin by means of a rubber bulb. It should never be blown out of the tube.

Grasp the arm with the hand, rendering the skin tense over the site of operation and with a scalpel or needle that has been sterilized in a flame, gently scrape and scarify the area covered by the drop of lymph until the true skin is bared.

A space of an eighth of an inch in diameter should be scarified. Always endeavor to avoid bringing blood.

After allowing the area to dry, a clean soft handkerchief or a soft cotton cloth (recently sterilized by boiling) is fastened to the shoulder of the under

garment in such a manner that it will hang down over the wound, thus preventing irritation from rubbing of the clothes. No other dressing is necessary.

The following well known succession of events appearing ordinarily after a successful inoculation should be explained fully to patients or their family who should be instructed to consult a physician in the event of untoward symptoms.

Within three to five days, according to the activity of the virus, vesicles appear at the edges of the scarification and an area of redness appears around it which is attended by considerable itching. Patients should be especially cautioned never to scratch it or permit dirt of any kind to get into the wound.

About this time the glands under the arm may become slightly swollen and tender, and there may be slight fever and loss of appetite. About the tenth day the sore begins to dry with the formation of a scab a few days later.

They should be instructed to observe care not to injure the scab, but allow it to dry up and fall off spontaneously, after which it should be burned.

Upon the appearance of the typical vesicle and resulting sore a certificate of successful vaccination should be issued and never before.

The protection of such a vaccination may endure during life, but experience has shown that absolute immunity has been lost in some cases after a period of five years; therefore it is advisable to have the operation repeated at intervals of five years and always when smallpox appears.

If subsequent vaccinations "take" it is thereby demonstrated that they were necessary; if not, the condition of immunity is altogether probable.

Unless the characteristic scar follows an inoculation it is probable that the attempt was unsuccessful or that an infection occurred.

Unless infants are sickly, presenting evidence of malnutrition or functional disturbance occasioned by detention, diarrhoea or indigestion and except during the period of weaning, they should be vaccinated before the expiration of the first year. If smallpox appears, the operation should be performed at once.

The popular impression that vaccination should only be performed in the spring and fall is of course erroneous and it is the duty of physicians to dispel such errors as well as doubts as to the efficiency of vaccination and re-vaccination in preventing smallpox.

ADDRESSES AND CONFERENCES.

In response to an invitation from the Pennsylvania Federation of Women's Clubs, on the 19th day of October, 1905, I delivered an address at Cambridge Springs, Crawford county, in which I explained the province and jurisdiction of the Department of Health, especially dwelling on opportunities opening for women to use their influence in promoting sanitary reforms and to take the lead in setting an example of obedience to the laws of the Commonwealth for the protection of life and health.

By request of the Secretary of the Dauphin County Teachers' Institute, on November 3rd, 1905, I addressed that body, at the Capital of the State, dwelling on the intimate relation of education to sanitation and calling attention to the wholesome laws on the statute book for the promotion of the health and morals of the children of the State.

On November 20th, 1905, I appeared before the Franklin County Teachers' Institute at Chambersburg, and addressed the members on the duty of instilling into the minds of the children under their care, both by precept and example, reverence for the written law and an abhorrence of lawlessness and anarchy.

Especial reference was made in all of these conferences to objection on the part of a comparatively very small number of parents to obedience to the

admirable and salutary requirement of the law of June 18, 1895, which makes it the duty of teachers to refuse admission to school of children who cannot present a physician's certificate of successful vaccination, and the courage shown by many of the young women teachers in complying with the requirements of the law in the face of violent opposition was commended in the strongest terms.

On February 26, 1906, I met the school teachers of Chester county, at West Chester, and addressed them on the subject of "Health the Handmaid of Education."

On May 9, 1906, I addressed a town meeting of the citizens of West Chester on the "Importance of the Sanitary Treatment of Sewage." The immediate reason for this address was the fact that the people were to vote on the question of the introduction of a proper sewerage system, the absence of any such system having led to the prevalence of typhoid fever on the neighboring farms and its reintroduction into the borough itself and into the State Normal School situated within the borough limits. In addition to this most unfortunate result, the city of Wilmington, Delaware, which takes its drinking water from the Brandywine Creek, had been making earnest protest against the pollution of that stream by West Chester and other towns in this State. The question of inter-State comity thus suggested is one of the utmost importance, and the suggestion has already been made that if the several States allow the pollution of streams within their own borders to go on unchecked it may become necessary to appeal to the general Government for the enactment of a national law on this subject.

June 1, 1906, I appeared, by request, before the Committee on Surveys of the Councils of the city of Philadelphia, and addressed that body on the necessity for an improved system of sewerage for Philadelphia and the surrounding country, at the same time suggesting a draft of a bill or ordinance for the purpose.

June 14, 1906, I delivered an address before the "Funeral Directors Association of Pennsylvania," at the annual meeting held at Harrisburg, on "The Relation of the Undertaker to Sanitation."

By invitation of the Chairman of the "Section on State Medicine," of the British Medical Association, I read a paper before that section, at the annual meeting held at Toronto, Canada, August 21, 1906, the subject being "The Prevention of Tuberculosis." At the conclusion of this paper I proposed a new method for the preparation of a serum for immunization against tuberculosis.

At the annual meeting of the Medical Society of the State of Pennsylvania, held at Bedford, Pennsylvania, September 20, 1906, I delivered the stated "Oration in Hygiene," in which I indicated the lines along which the medical profession and the Department of Health could be mutually helpful, and, working in harmony, could greatly advance the health interests of the State. At the same time I expressed my sense of personal obligation for the willingness shown by physicians to render the somewhat onerous services which the State had required of them.

May 2, 1906, Dr. F. C. Johnson was detailed to represent the Department at the annual meeting of the American Medical Association at Boston, Massachusetts, enrolling himself in the Section of State Medicine, and taking advantage of the occasion to study the methods of the Massachusetts State Board of Health, the Board of Health of Boston and the local Boards in villages.

May 22, 1906, Dr. W. R. Batt was detailed to represent the Department at the annual Conference of the Surgeon General of the United States Public Health

and Marine Hospital Service with the State Health Authorities at Washington, D. C.

This conference is held in accordance with an act of Congress and affords the State Health Authorities an opportunity of participating in the consideration and decision of questions of national concern and policy in sanitary matters. It is therefore an occasion of considerable importance.

Decisions of the Courts.

While it has been the constant aim of the Department to avoid litigation and to procure compliance with the health laws of the State by appealing to the reason of the people and by educating them in the fundamental principles of sanitation, yet instances have occurred in which it has been necessary to use legal measures in order to enforce the authority of the Department. To have refrained would have been to incur the charge of weakness and would have won for the State the contempt of the masses.

One of the first cases was on account of pollution of the Schuylkill river. The maintainer of the nuisance was a hosiery manufacturer at Royersford, the drainage from whose mill containing fecal matter, after being received into a hole near the river's edge, eventually found its way into the river. The court decided in favor of the State. A new trial was asked for on the ground of the unconstitutionality of the Act. This was denied and the constitutionality of the Act strongly affirmed. This settles the question of the validity of the law and the power of the Commissioner for the prevention of the pollution of streams as far as the lower courts are concerned.

A second case was that in which the Attorney General applied for a writ of mandamus to compel the Waynesboro school board to refuse admission to an unvaccinated child. The directors appealed to the court to have the mandamus which had been granted quashed. This was refused and the parent of the child carried the case to the Supreme Court of the State. Here the constitutionality of the Act was reaffirmed in the strongest language, with a rebuke to the counsel who had presumed to again question its validity in the direct face of two previous decisions of the same body. In the course of the opinion, which was delivered by Chief Justice Mitchell, occurs the following important expression: "At present the vast preponderance of opinion among intelligent and educated people, under the guidance of the best medical authority is that vaccination is a highly useful ameliorative if not always a preventive of one of the greatest scourges that have in times past afflicted humanity, and that the regulation of it by statute is not only a justifiable but a wise and beneficent exertion of the public power over the public health."

By this decision not only is the validity of the act established beyond question, but the onus of its enforcement is laid upon the directors and not upon the teachers.

In a third instance the authority of the Commissioner to compel the prompt reporting of births was upheld by the courts in Westmoreland county, two midwives, one physician and two parents having been fined for failure to report. The importance of absolute compliance with this requirement in order to establish the accuracy of our statistics does not need to be insisted on.

The Attitude of the Public Press Toward the Department of Health, and its Value in Popular Education.

The staunch support of the public press throughout the State has been of the greatest possible encouragement to our efforts to organize the Department on a broad, firm and strictly scientific basis, while at the same time we were

meeting executive problems of considerable magnitude and difficulty, too often enhanced by the opposition of the ignorant and prejudiced. In its dual capacity of a leader of public opinion and a reflection of public sentiment the utterances of journalists are of great moment to the public official. In the matter of the enforcement of the law of 1895 requiring the presentation of a physician's certificate of successful vaccination before a child can be admitted to school, the press has sustained us with a unanimity, it might almost be said, an enthusiasm, which has been truly gratifying.

The geographical conformation of our State, with its large proportion of mountainous regions, many of its ranges being almost impassable except at long intervals through the occasional "gaps," and its sequestered valleys cut off from communication with centres of intelligence and civilization, have led to the segregation of large numbers of our people into isolated communities, shut out from the rest of the world to an extent which cannot be appreciated unless it has actually been seen, thus rendering it almost impossible to educate them except at the fireside through the medium of the newspapers.

A remarkable instance of the educational influence of the press, although unfortunately exercised in a perverted direction, occurred in the little mountain town of Waynesboro, Franklin county, having a population of less than one-tenth of many of the forty-one wards which compose the city of Philadelphia, where a prominent paper was unhappily led to espouse the cause of the anti-vaccinationists, and to openly urge the people to offer resistance to the laws of the State. Through its columns nearly the entire community were educated to believe that the vaccination of a child was almost equivalent to signing its death warrant, and that the operation afforded no protection against smallpox, the result being a most serious interruption of the work of the public schools and the excitement of large numbers of the people to a state bordering on frenzy. No better example could be furnished of the power of the newspaper and of the importance of having it conducted on broad, intelligent, patriotic and liberal lines. It will be my constant aim to so shape the policy and conduct the affairs of this responsible office that I shall continue to merit the approval of the intelligent and law abiding portion of the press and the people.

Holding these views as to the power and value of the press we have not hesitated to make ample use of the facilities which it affords for reaching our people in every part of the State.

While formal circulars for the direction of health officers, inspectors and nurses, and for the information of physicians have been circulated by the thousands, in addition to these, brief, popular articles, explanatory of both the theory and practice of sanitation, have been weekly distributed to hundreds of thousands through the medium of the papers. That these have been appreciated has been testified by many correspondents. This campaign of education is looked upon as by no means the least important of the labors of the Department.

Fourth of July Tetanus.

The annual loss of life and limb which of recent years has accompanied the uproarious and ridiculous manner in which the anniversary of our national independence has been celebrated was felt to be a matter of sufficient concern to warrant an effort to at least diminish this unnecessary sacrifice, especially of child life.

A statement was therefore given to the public press with reference to the peculiar kind of injuries inflicted by toy pistols, fire crackers and similar plosives, as follows:

"Injuries inflicted by explosives are peculiarly susceptible to tetanus or lock-jaw. The germ which produces the disease is to be found in earth and dust, and sometimes suspended in the air in windy localities. It grows best buried in the flesh, cut off from the atmosphere and it is probably for that reason that injuries from explosives so often terminate in tetanus or lock jaw. Early treatment by a physician will often prevent the malady. A doctor should be called at once to treat a penetrating wound, such as powder or other explosives are apt to make.

"In case of prolonged delay in obtaining the services of a physician, a competent druggist or trained nurse might apply hot antiseptics."

This statement was widely circulated throughout the State and led to similar communications being addressed to the public by local Boards of Health. Parents and others responsible for the welfare of children were evidently deeply impressed by the great risk incurred in allowing their children to handle these dangerous explosives. This fact was attested by the very considerable diminution of Fourth of July accidents and the resulting deaths from tetanus which have been so conspicuous an after-math of the celebration in recent years.

TUBERCULOSIS.

During the year 1906, the number of deaths reported as due to pulmonary tuberculosis was 9,258. No reliable figures exist by which we can judge whether this is an increase or a decrease as compared with the year before or with the usual annual average. But taking this mortality as it stands, is it not appalling to think that nearly ten thousand human lives should be swept away in our State alone, in a single twelve months, by a disease now known to be preventable. This fact, namely, that this lamentable sacrifice is unnecessary, imposes a duty on this Department and we have been earnestly considering in what manner the abundant resources of the State, pecuniary, climatic and topographical, can best be utilized to diminish the ravages of this terrible scourge.

OPERATIONS OF THE DIVISIONS.

DIVISION OF MEDICAL INSPECTION.

FREDERICK C. JOHNSON, M. D., Chief Medical Inspector.



THE DIVISION OF MEDICAL INSPECTION.

COMMUNICABLE DISEASES.

SMALLPOX.

The following is a brief detailed statement of the operations of the Division of Medical Inspection in supervising measures for stamping out epidemics of smallpox since the inauguration of the Division in June, 1905.

At the time of the establishment of the Department this disease was prevailing at a number of points in the State. The first of these to apply for aid was Elizabethtown, Dauphin county.

Elizabethtown, Lykens and Powl's Valley, Dauphin County.

A communication received from the President of the Council of Elizabethtown showed that, owing to improper diagnosis, the disease had been extensively distributed in the borough, 12 cases having occurred in 8 different localities. Up to June 19th, 14 cases had been reported.

Dr. Paul A. Hartman, County Medical Inspector, was instructed to make an inspection at this place. He reported that none of those who had been attacked had been previously vaccinated. A hospital had been erected, the cases had been removed to it and all proper precautions taken. In the meantime, however, cases had escaped to Lykens and Powl's Valley. All of these cases were traced up and careful precautions, including vaccination, enforced. This resulted in the rapid termination of the outbreak.

Williamsburg, Blair County.

Another centre of infection was Williamsburg, Blair county, cases having occurred early in September in Katherine and Woodbury townships, adjacent to this borough; also at Mount Aetna and East Altoona. Investigation of this outbreak was made by Dr. William M. Findley, of Altoona, County Medical Inspector, who also discovered cases in Mines, Clover Creek, Blair Four Corners and Bellwood. In the latter neighborhood 24 cases were discovered. All suspects were vaccinated, disinfection was carefully performed and the disease soon died out.

Tower City, Orwin, Reeves City, Schuylkill County.

At the same time a somewhat extensive epidemic was prevailing in Schuylkill county, cases having been found at Tower City, Orwin and Reeves City. This being a mining region made it more difficult to manage the outbreak, and it was not until the early part of December that the County Medical Inspector, Dr. Daniel Dechert, was able to state that the disease had been wiped out.

DuBois, Grass Flat, Cooper Township, Burnside Township, Clearfield County.

On July 26th cases were reported at DuBois, Clearfield county, by the County Medical Inspector, Dr. Spencer M. Free. This outbreak was traced to a recently arrived Swedish immigrant. Cases also occurred at Grass Flat, Cooper township and in Burnside township. Vaccination was freely performed and all other precautions taken with the result of the prompt suppression of the epidemic.

Marietta, East Donegal Township, Lancaster County.

In the month of September, 1905, a number of cases were found in Marietta, Lancaster county, and in the adjoining township of East Donegal, the disease having first made its appearance in a silk mill in which 350 persons were employed.

The County Medical Inspector, Dr. M. W. Raub, made a number of visits to this place and working with the local health authorities both in the borough and in the township gradually succeeded in stamping out the infection.

The schools were closed and general disinfection practiced. The epidemic appeared to have been protracted longer than necessary in consequence, first of a dispute with regard to the diagnosis, and secondly, of the too early discharge of persons from quarantine.

On October 6th, 1905, Dr. Benjamin Lee, Assistant to the Commissioner, visited the borough and township, made a careful investigation of the conditions and left such instructions as seemed to be needed for still further strengthening the work of the local Boards.

Much uneasiness was caused to the residents of neighboring towns by the long continuance of the epidemic. It is somewhat singular that this town is the location of one of the largest vaccine producing establishments in the world, and yet it was just here that serious difficulty was experienced in inducing people to be vaccinated.

This is an experience somewhat similar to that of Gloucester, England, the home of the great Jenner, the discoverer of vaccination, where, some years since, prejudice having arisen against vaccination, the entire town became unprotected. The result of this neglect was an outbreak of smallpox, which completely paralyzed all of the business interests of the town, led to a suspension of the courts, caused thousand of cases and a great number of deaths, and finally yielded only to the general enforcement of vaccination.

In consequence of the railroad relations of Marietta with many other towns, the opportunity was taken to urge upon the railroad companies the importance of having their employes vaccinated.

York, York County.

On the 6th of July, 1905, the Chairman of the Sanitary Committee of York reported a number of cases in the municipal hospital of that town.

The careful precautions taken by the local authorities apparently resulted in the rapid disappearance of the disease, but unfortunately on the 12th of October the York authorities again reported the existence of 7 cases. These were promptly taken in hand by the local Board of Health, and there was no further spread of the disease.

Connellsville, Fayette County.

On the 14th of September, 1905, the County Medical Inspector, Dr. T. H. White, of Connellsville, reported a case of smallpox having arrived from Fairmount, W. Va.

His companion in the cell in the police station at that place was removed with him and both were placed in close quarantine, and vaccination of all the contacts enforced.

Everett, Bedford County.

October 16th, 1905, a case was reported from Everett borough by Dr. Walter de La M. Hill, County Medical Inspector.

This case was imported from Altoona where the disease was prevailing. All precautions were taken and no new developments occurred.

Martinsburg, Blair County.

Early in October, 1905, the disease made its appearance in Martinsburg, Blair county, and was investigated and its management directed by Dr. William M. Findley, County Medical Inspector.

In consequence of the earlier prevalence of the disease in the neighborhood of Martinsburg, vaccination had been very generally performed and there was no spread of the disease.

Mount Joy, Lancaster County.

On October 23rd, 1905, the Secretary of the Board of Health of Mount Joy, Lancaster county, reported one case of the disease. The prompt discovery of this case and the excellent precautions taken by the local authorities prevented further infection.

West Donegal Township, Safe Harbor, Lancaster County.

Early in November, 1905, a case was reported in West Donegal township, Lancaster county, probably traceable to East Donegal township, where the disease had long been prevailing. No extension of the infection followed this case.

About the middle of November, 1905, smallpox was conveyed from Marietta to Safe Harbor, Lancaster county. An investigation by Dr. F. C. Johnson, Chief Medical Inspector, showed that some 9 cases had developed from this exposure. General vaccination was practiced and the disease was soon eradicated.

Ambridge, Beaver County.

On December 22nd, 1905, Dr. H. M. Lavelle, Health Officer of Ambridge, Beaver county, reported a case of smallpox and that all precautions, including the closing of school, had been taken. There was no spread of the disease.

Tamaqua, Schuylkill County.

On December 30th, 1905, the Borough Solicitor of Tamaqua reported that a considerable outbreak had just taken place in that borough. The County Medical Inspector, Dr. Daniel Dechert, visited the town and reported the existence of twenty-nine cases, all under quarantine and guarded and to be removed immediately to the Municipal Hospital, just completed. The town had been districted, and general vaccination was about to be inaugurated. Under these prompt and wise measures the outbreak was soon at an end.

West Willow, Conestoga Township, Lancaster County.

An outbreak occurred in this township in December, 1905. The Township School Board organized as Board of Health. Nine houses were placed in quarantine. All suspects were vaccinated. The epidemic was reported at an end about the last week in January, 1906.

Renovo, Clinton County.

December 3, 1905, Dr. R. B. Watson, County Medical Inspector, reported a case of smallpox at Renovo, in a lumberman.

The case was quarantined by the local board and all contacts vaccinated. The day following his brother was taken down with the disease. No other cases occurred. The lumber camps were held under observation for the period of incubation.

Bryn Athyn, Montgomery County.

February 13th, 1906, Dr. H. H. Whitecomb, County Medical Inspector of Montgomery county, was notified by telephone of the existence of a suspicious case of eruptive disease at the Academy of the New Church, Bryn Athyn. He visited the school at once, placed the institution under quarantine, established a guard and ordered general vaccination.

The case was imported from Canada in the person of a returning school teacher. Three other cases developed. As certain parties who had been exposed went to Philadelphia to business, their employers were notified and correspondence was had with the Philadelphia Board of Health. No other cases followed.

Bryn Mawr, Montgomery County.

On May 30th, 1906, upon the order of the Commissioner, Dr. Johnson, Chief Medical Inspector, visited Bryn Mawr Hospital and in company with Dr. Jay F. Schamberg, saw a colored man who had been admitted to the hospital one week previously as a typhoid fever suspect.

On Monday, two days prior to his visit and five days after the patient's admission to the hospital he was apparently convalescent and was about to be discharged when a general maculo-papular eruption was discovered.

The rash appeared at first on the forehead and trunk and was attended by considerable itching. Examination revealed a rather copious papulo-pustular eruption scattered over the body, most profuse on the trunk, where the lesions were apparently of the same duration as those on exposed surfaces and presented many scabby drying lesions.

Other than a somewhat shotty feeling of lesions on the hands, the case was most suggestive of Varicella, but as the patient was unvaccinated and a very justifiable element of doubt existed as to the true duration of the rash, it was deemed advisable to keep the case isolated for further observation.

On Saturday, June 2nd, Dr. Johnson again saw the case in company with Dr. William M. Welch. The mode of evolution of the rash had at that time assumed a frank variolous character and a diagnosis of variola was readily made.

Thorough vaccination and re-vaccination of all contacts had been performed early with the result that not another case followed.

TYPHOID FEVER.

The almost universal pollution of streams in Pennsylvania renders typhoid fever one of the most common of the communicable diseases. It is also one of the most fatal.

This Division has been instructed to co-operate with the Engineering Division in supervising operations for checking the spread of this disease or advise local authorities for that purpose at the following places:

Toughkenamon, Chester County.

On the 18th day of August, 1905, information was received of the existence of typhoid at, or near, Toughkenamon, Chester county.

The County Medical Inspector, Dr. J. C. Mewhinney, was detailed to make an inspection and reported the discovery of a single case on a farm in the neighborhood.

The drainage from a creamery which found its way into a stream running through the farm had been suspected of being the cause of this disease, but in the opinion of the Inspector there was no reason to attribute it to this cause.

The Department ordered that no milk or milk products should be sold from the household while typhoid was present, but permission was given to transfer the stock to the premises of a householder whose personnel were known to be healthy.

The customary instructions were given and nothing further developed from the case.

Franklintown, York County.

Information having been received on August 23, 1905, of the existence of typhoid fever in Franklintown borough and also to the effect that Franklintown was without a Board of Health, Dr. George H. Fox, of Philadelphia, was instructed to make an inspection. This gentleman had a conference with the Council called in special session and a Board of Health was appointed on the spot and proper ordinances adopted.

The cases, five in all, were traced to a single well and instructions were given for emptying and cleansing same.

No further spread of the disease occurred.

Johnsonburg, Elk County.

August 30th, 1905, report of inspection at Johnsonburg by Dr. W. L. Williams, County Medical Inspector. Number of cases reported, 35. Number of deaths up to date, 5.

Inspection of the water supply had been made by a Department Officer August 7th in consequence of report from the Health Officer of the borough of Johnsonburg.

August 15th the Board of Health of Johnsonburg was instructed to take measures to have all privies which received typhoid discharges disinfected and cleansed, and all water used for drinking or domestic purposes boiled, the milk supplies inspected, and an effort was made to control the habits of the lumbermen scattered along the shores of the stream.

Under the use of these precautions the epidemic gradually abated. The question of the water supply of the town, however, is still under investigation.

Franklin, Venango County.

In the latter part of August information was received by the Department that a considerable number of cases of typhoid fever had appeared in and about the city of Franklin.

Considerable correspondence took place between the Commissioner, the local authorities, and the local physicians, which resulted in the adoption of such prompt and intelligent methods for the suppression of the outbreak that it was not considered necessary to send the Chief Medical Inspector to investigate the conditions.

An Engineer, however, was sent in order to aid them in their study of the water supply and sewerage problems of the city.

York, York County.

The aid of the Department was solicited in the latter part of the month of August by the authorities of York, Pa., in consequence of the reported existence of cases of typhoid fever in the family of a dairyman residing about two miles west of York.

The County Medical Inspector was instructed to investigate and discovered the report to be correct, tracing the infection to a water closet so situated that the stream of water which was used for dairy purposes might readily be polluted. The local conditions were ordered to be remedied.

Archbald, Lackawanna County.

On September 6, 1905, notification was received from William Van Doran, M. D., Health Officer of Archbald, Lackawanna county, that between 25 and 30 cases of typhoid fever had developed in that borough during the past week.

In response to this information the County Medical Inspector, Dr. H. V. Logan, was instructed to immediately visit Archbald and learn if possible the original source of infection.

The rules recently adopted by the Department for the management and sanitary control of typhoid fever were furnished both to the Board of Health and to the County Medical Inspector.

The investigation made by Dr. Logan led to the exclusion of ice and milk as a possible source of the outbreak, and further showed that a temporary or emergency supply of water was turned into the pipes of the public supply August 17th and shut off again September 5th, and that there was a possibility of pollution of said temporary supply.

Careful instructions were given for cleansing the entire water system, and flushing the pipes, with especial attention to the blind ends.

More than 60 cases developed in this outbreak and all of those affected made use of the water from the infected dam, known as the White Oak Dam.

Under the employment of the vigorous measures suggested by the Department the epidemic rapidly abated.

Johnstown, Cambria County.

June 26, 1905, a communication was received from the Johnstown Water Company calling the attention of the Department to serious instances of pollution of waters forming a part of the public water supply of the city of Johnstown.

In the month of September typhoid began to make its appearance so that by the 22nd of the month 8 cases had been reported to the authorities.

An investigation was undertaken by Dr. W. E. Matthews, County Medical Inspector, which developed the fact that, in addition to the instances referred to by the water company, a very serious pollution existed on the farm of the H—— family near the city. This consisted of an overflowing privy vault into which the discharges of three typhoid patients, undisinfected, had been allowed to drain for at least three weeks.

The most thorough precautions were immediately taken to destroy the remaining infection in the old vault and in the earth lying between the closet and the stream, and a new watertight vault was constructed.

A solution of copper sulphate was employed to disinfect the water in the reservoir, which was put out of service temporarily. The results were most satisfactory, the outbreak having rapidly subsided.

Nanticoke.

The epidemic at Nanticoke was of considerable dimensions and as it is the first instance in which State authorities have managed an outbreak of this disease with the latest scientific knowledge at their command backed by adequate resources, it will be worth while to briefly set forth the methods by which so extremely threatening an epidemic was so successfully and rapidly brought to an end.

On September 6, 1905, information was received by the Department that a serious explosion of typhoid fever had occurred in the town of Nanticoke, Luzerne county. The County Medical Inspector, Dr. Charles P. Knapp, of Wyoming, was accordingly instructed to make a thorough investigation of the cause of this outbreak and report at once.

Dr. Knapp immediately proceeded to Nanticoke and on the 7th of September reported that the cause of the outbreak could not be definitely determined, but that it was possible that a recent heavy rain storm might have washed some old source of infection into the supply. In order to assist Dr. Knapp, Dr. F. C. Johnson, Chief Medical Inspector, was sent from Harrisburg to make an additional investigation. This resulted in the discovery of a recent case of typhoid fever so situated that infection of a stream flowing into the water supply might readily have occurred.

The report of Dr. Knapp by wire stated that 132 cases had been definitely reported but that 200 had probably occurred. (For further particulars see special report.)

Arrow, Somerset County.

A report of from 25 to 30 cases of typhoid fever in the town of Arrow, Somerset county, having been received on the 27th of September, 1905, the acting County Medical Inspector, Dr. M. H. Baker, was instructed to make an investigation.

He reported the town to consist virtually of a lumber camp and that the majority of those affected used the water from a single spring known as the Hoffer spring.

There was also reason to suspect that the ice used might have been infected, typhoid fever having been present two years before near the pond from which the ice was cut.

Dr. Baker gave full instructions as to boiling the water, cleansing the well, and disinfection of the sick room, which were confirmed by the Commissioner, with the usual result of bringing the outbreak to an end.

Berwick, Columbia County.

On the 7th day of October, 1905, information was received from the County Medical Inspector, of Columbia county, Dr. S. B. Arment, that typhoid fever was prevailing to an unusual extent in the town of Berwick.

The water supply of this place as well as of West Berwick and Nescopeck, which lie nearly opposite, is derived from the Susquehanna river, and the possibility of the infection of typhoid being conveyed from Nanticoke, where the disease had been prevailing for several weeks, was very apparent.

The County Medical Inspector was therefore instructed to make a careful investigation.

The Secretary of the local Board of Health was furnished careful instructions as to precautions to be taken in the way of boiling water, watching the milk supply, examining the ice, and in every way preventing the escape of infection from houses in which the disease prevailed.

Dr. F. C. Johnson, Chief Engineer Snow and Dr. George H. Fox, Special Inspector, were detailed to visit the place and co-operate with the local Board.

These officials having been for several weeks engaged in combating the epidemic at Nanticoke, were fitted by their recent experience to make an inspection of this kind, and to suggest the necessary measures.

The local authorities were only too ready to co-operate with them and to furnish them every facility.

Under these conditions the cases soon began to diminish and the epidemic died out.

Llanerch, Delaware County.

Information having been received from the Board of Health of Philadelphia that a possible source of typhoidal infection of milk supplied to residents of that city existed at Llanerch, Delaware county, an investigation by the County Medical Inspector was ordered.

A probable source of infection of milk was found at the dairy of B. H., where a case of walking typhoid existed.

The fact developed that the dairyman had been in the habit of bottling the milk himself at the dairy, and that in order to start the flow of the milk from can to bottle, he was in the habit of placing one end of the tube in his mouth and sucking the fluid through until the action of the syphon was started. It is quite possible to see how infection could thus be conveyed.

An inspection subsequently made by the Chief Medical Inspector, Dr. Fred C. Johnson, corroborated the evidence furnished by the local Inspector.

Two cases of typhoid from the farm named were found in the Presbyterian Hospital, and the conditions prevailing at this dairy were such as to indicate pollution of the milk were there any cases of infection near the water supply used for cleansing the utensils.

Coatesville, Chester County.

On October 6th a communication was received from the superintendent of a construction camp at Pomeroy, Chester county, stating that the authorities of the borough of Coatesville had complained that a rivulet originating within the area occupied by the camp was receiving pollution from the same, and that said rivulet emptied into the west branch of the Brandywine river, which is one of the sources of Coatesville's water supply. A few cases of typhoid fever in the borough were thought to have been caused in this way. An inspection made by Dr. Lee showed that the camp of about 450 Italians was well constructed and carefully policed, that there were two privies, the nearest of which was distant not less than 150 feet from the stream and could not possibly pollute it.

The camp physician makes a daily visit of inspection and has had no serious illness to treat all summer. The typhoid fever therefore could not have originated here. There was a possibility however, that should a case occur in the camp, infected clothing might be washed in or near the rivulet, the waters of which might become infected. It was therefore ordered that a wash house be constructed on the opposite of the camp and that no washing, either of persons or of clothing, be permitted near the stream.

Clearfield, Clearfield County.

November 13, 1905, the Health Officer of Clearfield reported a number of cases in the borough.

The County Medical Inspector was at once instructed to investigate.

Dr. Free traced the origin of the outbreak to a spring in Penn township, Clearfield county, which received serious pollution, and the water of which was used for dairy purposes, the milk being distributed in Clearfield. Twenty-six cases of fever occurred.

The suspected source was cut off and by December 8th, the Health Officer was able to report the epidemic had ceased to spread.

May 26, 1906, another outbreak was reported by the same officer, of fourteen cases, with one fatality, within an area of two squares. All but one case used milk from the same dairy, and as they used the general water supply and there were no cases among the population generally the inference was that this milk supply was at fault. The County Medical Inspector investigated this outbreak also.

Foustwell, Somerset County.

In December, 1905, typhoid fever made its appearance at Foustwell, a mining settlement of the Berwind-White Company, a village of some 250 people. From 25 to 30 cases were reported to have occurred. Dr. A. M. Baker, Medical Inspector for Somerset county, was instructed to inspect and report. His report showed that it was probable that the infection had been originally introduced from Arrow, where the disease had prevailed a few months before, by means of a small stream called Roaring Fork, a tributary of Shade Creek, which runs through this place. The extremely insanitary condition of the village and entire absence of proper precautions in the disinfection of the excreta of the sick were however responsible for its continuance.

The manager of the Mining Company was communicated with and careful instructions were given for the disposal of all fecal matter in such way that it could not possibly enter Shade Creek, for the free use of disinfectants, for boiling all water for domestic purposes, and for careful cleansing and disinfection of eating utensils used by patients. The Company was also advised to employ a trained nurse to instruct the people in the hygienic care and management of the cases. Under these conditions the epidemic rapidly subsided.

Forest City, Susquehanna County.

February 6, 1906, L. H. May, Secretary of the Board of Health of Forest City, a mining town of about 5,000 inhabitants, reported the occurrence of seven cases of typhoid fever within one week. Dr. H. B. Lathrop, County Medical Inspector of Susquehanna county was instructed to investigate. The origin was traced to a dairy in the neighborhood of Dundaff, where the disease had existed during the previous autumn. The water supply did not appear to be of suspicious quality.

The suspected milk supply having been cut off, the disease at once ceased to spread.

State Normal School, West Chester, Chester County.

Owing to the appearance of a number of cases of typhoid fever in this school, Dr. F. C. Johnson, Chief of Medical Inspection, visited West Chester April 14, 1906, and determined the following facts.

The disease first made its appearance February 27th, and new cases rapidly developed either at the school or at home, where the pupils had gone on vacation, until twenty had been attacked, of whom three died. Indications pointed strongly to pollution of the milk supply at the West Chester Creamery by an Italian employe who had an ambulant case. The milk supply was changed and great care was exercised in the use of vegetables liable to contamination.

Several dairies were visited, but no typhoid was found among the employes and no very serious breaches of hygiene. By the end of April the outbreak had entirely died out.

Towns in the Vicinity of Pittsburg.

In the month of April, 1906, it became evident that there was an unusual prevalence of typhoid not only in the city of Pittsburg, but in her suburbs and many neighboring towns drawing their water supply from the Allegheny river or emptying their sewage into it. I therefore addressed a circular letter to the Board of Health of each of the following towns, viz: Oakmont, Verona, Natrona, Springdale, Manorville, Kittanning, Freeport, Arnold, Parnassus, Brackenridge, Tarentum, Cheswick and Aspinwall, calling their attention to the fact that water is known to be a very common vehicle for the transmission of matter which causes that disease, and that while it is certain that a great reduction in the cases in the afflicted districts would occur if the discharge of sewage into the Allegheny river were to be discontinued at once such discontinuance was a practical impossibility.

It was pointed out, however, that it is quite possible to kill the typhoid bacilli before they leave the sick room by thorough disinfection and that in this way many lives might be saved in Pittsburgh and other towns. Two thousand copies of the circular of the Department for the guidance of nurses and attendants in charge of persons suffering from typhoid fever were distributed among the health authorities of this water shed.

Palmerton, Carbon County.

On May 15, 1906, cases of typhoid were reported at Palmerton by H. W. Blunt, Local Registrar, and Chief Medical Inspector Johnson was directed to investigate the outbreak. The cases were among the employees of the New Jersey Zinc Company's works at Hazard, a contiguous village, and had developed in rapid succession beginning with April 16th, twenty having occurred. Everything pointed to the water supply as the source and the discovery by the watchman of a separation in the intake pipe just where much sewage enters the dam afforded a clue to the solution of the problem. Pending repairs a supply from an artesian well was obtained.

Dr. Johnson's final report on this outbreak is as follows:

October 4, 1906, with a review of the cases it was apparent that polluted water was still playing an important role in the extension of this epidemic. Several cases, including the juveniles, were justifiably attributed to secondary infection.

As the officials of the company still entertained some suspicion as to the purity of the milk supply, I deemed it advisable to make an inspection of the dairy farms supplying the Palmerton dealers. Monday afternoon and the entire day Tuesday were consumed in this work. The history of any illness simulating typhoid fever having existed among the personnel of any of these farms visited was not elicited and with but three exceptions the sanitary conditions of the premises were generally good. None of the physicians practicing in these neighborhoods had had cases under their charge that in any sense suggested an aberrant type of typhoid fever.

Upon visiting the hospital my suspicions with regard to the use of Parryville water at the Zinc Works at Hazard was confirmed in several instances and it is doubtless true that the others drank from this water, but denied having done so, I am satisfied through suspicion and imaginary fear of prosecution or loss of employment through disobeying the order of the company. It is a noteworthy fact that cases among the families living within the town declined rapidly following the substitution of the artesian well water supply for the Parryville water. Although the chemical analysis of the artesian well water indicated potable water, the officials of the Zinc Company were anxious to have a bacteriological report on the same and I accordingly collected samples from taps in town, as well as from the effluent of their sewage disposal plant.

The repair of the intake pipe at Parryville has proven a very difficult and expensive undertaking but is at this time nearing completion. It became necessary to build a crib around the separation in the pipe, and at the intake, requiring the services of divers and skilled mechanics. The entire intake line is now being tested by means of compressed air and the leaks at joints thus revealed are being caulked. The excavation for the completion of the sewerage system is finished and the pipe will be laid in a fortnight. Active work has been instituted in finishing the filter bed for sewage, which, when completed, should amply provide for the necessities of the town. A lateral extension east on Lehigh avenue is contemplated and its completion furnished the assurance that many nuisances along this thoroughfare will be permanently abated.

Definite plans for the filtration of the Parryville water supply have not as yet been adopted, although the sentiment of the company was strongly in favor of this project.

To date ninety-eight authentic cases of typhoid fever have been reported and returns of five others that are somewhat doubtful, with eleven deaths, to which may be added three others which were attributed to kindred disorders, but which in the light of subsequent developments are believed to have been typhoid fever. The segregation of cases in their emergency hospital has undoubtedly prevented extensive inroads on the population of the town, especially in this so in the over crowded foreign boarding house district where conditions were most favorable to its development.

With the repair of the intake line, thereby avoiding the direct inflow of Parryville sewage it would seem that there would be at least an appreciable diminution in the number of cases of typhoid fever among the consumers of this water, although it seems improbable that this supply will at all times be without the elements of danger of pollution with resulting mischief to the hundreds of employees of the Zinc Company at the works at Hazard, and that the most rational solution of this problem will be filtration and adequate provisions for storage.

The emergency hospital at Palmerton has been closed, and during the past six weeks not a case of typhoid fever has been reported in the town.

Abbott, Stewardson and Oleana Townships, Potter County.

On reviewing the morbidity reports from Potter county for the months of July and August, 1906, I was impressed with the fact that the number of cases of typhoid fever was excessive, especially when the sparseness of the population was considered. I therefore instructed Dr. E. H. Ashcraft, County Medical Inspector, to visit the region, and determine the causative factor.

The report showed that there had been scattering cases in Abbott township for some time and that the source seemed to be a lumber camp owned by W——— L———, about six miles beyond Germania. The conditions prevalent at the camp were found to be indescribably filthy.

The first case was that of a girl, whose dejections were emptied without disinfection into a privy over a run. Following this a dozen or more cases had developed, and gone home or to hospitals for treatment.

There was ample opportunity for infection of the spring, and also of food by flies. Instructions were given for a most thorough cleaning up of the camp, the free use of disinfectants and the construction of proper outhouses at a safe distance from the run.

Shippen and Clymer Townships, Tioga County.

Similar reports of the prevalence of fever in certain sections of Tioga county led to instructions being issued to Dr. S. P. Hakew, County Medical Inspector, to endeavor to discover the source. This was found in a lumber camp, owned by L. F. F———, and run by C——— & H——— lumbermen in Shippen township. The conditions were almost exactly the same as those found at the Potter Co. camp. Thirteen cases were discovered, of which four were at Westfield, two near the camp in the woods, one in a hospital at Williamsport, one in hospital at Corning, N. Y., three were at Asaph, Shippen township, one at Ansonia, Pa., and one at Marsh Creek, Pa. Four other small lumber camps were found within a radius of a few miles, all in a filthy condition, but not infected with typhoid. The same instructions for cleaning up and disinfection, however, were given in every case, and strict compliance was promised by the proprietors.

Berwyn, Devon and Stratford, Chester County.

About the middle of August, 1906, a number of cases of fever appeared in Chester county in and about Berwyn, Devon and Stratford. Investigations were ordered to be made by Dr. J. C. Mewhinney, County Medical Inspector, and Nuisance Inspector Henry Andrews.

A case of typhoid fever was found on the T——— dairy farm, from which many of the cases drank milk. The ice plant from which manufactured ice was furnished to some of the houses was reported as using water in danger of pollution. Other dairies in the neighborhood were inspected and in all instructions were given for placing them in good sanitary condition. Fifteen cases of fever were reported to have occurred.

Alburtis, Lehigh County.

October 15, 1906, an outbreak of typhoid fever was reported at Alburtis, Lehigh county. Dr. M. F. Cawley, County Medical Inspector, was instructed to investigate the same. He reported 15 cases, widely scattered, with no common supply either of water or milk. All but one of these were males and all had eaten raw oysters at a particular saloon. The only female who contracted the disease had eaten raw oysters at home, brought from this saloon. Another female in the same house had eaten some of the same lot of oysters, cooked, and did not develop the disease. No previous case of typhoid had occurred in the village for eight years, and no case occurred in any person who had not partaken of these shipments of oysters. There seemed to be ample reason, therefore, to attribute the outbreak to the use of raw oysters. The health authorities of New Jersey were therefore informed of the incident and given the names of the dealers who had shipped the oysters, in order that this matter might receive proper attention on their part.

Scranton.

Scranton's typhoid record for the earlier half of the year 1906 was a remarkably clean one, and the few cases that occurred could easily be attributed to importation.

In August, however, a slight increase was observed in the returns of that disease, and for the next two months there was a constant, though comparatively slight, prevalence of the affection, indicating same unusual condition. No alarm was felt, however, by the local authorities until December 7th, when there was a sudden and startling rise in the number of cases. By the middle of the month it was evident that an epidemic existed. On the 15th, 33

cases were reported as having occurred in the last 24 hours. There could be no doubt as to the nature of the disease, as a large percentage of the cases gave a positive Widal reaction.

Dr. Moulton of the Division of Medical Inspection and Mr. Witherell, assistant engineer, were at once commissioned to visit Scranton, put themselves in communication with local health authorities and endeavor to discover the origin of the outbreak. Dr. Moulton reported that one hundred and thirty cases had occurred in six days and that it had been discovered that all of these cases had developed in a section of the city supplied from one only of the three reservoirs which furnish the city. The authorities had accordingly taken the precaution to shut off this source, known as the Elmhurst Reservoir. By the eighteenth of the month deaths began to be reported. The increase in the number of cases was now very rapid, so that by the end of the month it had reached 1,010 in the city and 18 in the adjoining borough of Dunmore, evidently due to the same source.

In the meantime the only possible origin which Dr. Moulton had been able to discover was the case of a woman living on the water shed who had been ill about two months before, with a diarrheal affection, the location and condition being such that it would have been quite possible for the drainage from the case to have reached a brook which was one of the feeders of the reservoir. The Widal test gave no reaction in her case at date of report, so that it was simply a matter of conjecture that she had been affected with typhoid. The colon bacillus was found in the water of the Elmhurst Reservoir and Reservoir No. 7. Numerous samples of the water from all of the reservoirs were sent to the laboratories of the Department, but it was not until the end of December that the bacteriologists succeeded in isolating and successfully cultivating the bacillus typhosus, the germ of the disease, from one or more of them. Fifty cultures were made, the morphology of the germs obtained was perfect, and they presented all the recognized characteristics. The Scranton authorities were at once notified of this discovery and the Commissioner of Health took charge of the Elmhurst water shed, establishing guards and issuing orders for a thorough cleansing of the territory and abatement of all sources of pollution. Dr. F. C. Johnson, Chief Medical Inspector, and Mr. F. Herbert Snow, Chief Engineer, were commissioned to take charge of the operations. The water company heartily co-operated with the Department, in furnishing teams, labor and supplies for carrying on the work.

At the same time, confident that, notwithstanding the strenuous efforts of the local Board of Health, backed by the Department, to secure the disinfection of the discharges of the sick, much infective material must have entered the Susquehanna river, the Commissioner issued the following warning to the authorities and health boards and water companies of all towns on the Susquehanna below Scranton:

"I fear there is an unusual amount of infection in the Susquehanna river by reason of the epidemic of the disease now prevalent in the city of Scranton. While I have issued instructions to the Mayor of that city to disinfect all discharges from typhoid fever patients before the discharges leave the premises, yet I have grave doubts that the instructions are not generally observed with especial reference to convalescents, and consequently conclude that the Susquehanna river water, into which the sewers of the city of Scranton empty, is an unusually dangerous source of water supply to the public at this time.

It becomes my duty to warn you not to furnish this supply to your customers unless it be first adequately filtered, otherwise you are to notify the public to boil the water for the period of thirty minutes before it is used for drinking or culinary purposes."

The timeliness of this warning was emphasized by the sudden appearance of typhoid fever in Berwick about sixty miles below Scranton three days later.

SCARLET FEVER.

The advice or assistance of the Department in controlling outbreaks of scarlet fever has been sought in numerous instances.

Among the places where such aid has been solicited may be mentioned Cartwright and Dents Run, Elk county, where an inspection was ordered, and made by Dr. W. L. Williams, County Medical Inspector, in the latter part of July.

Rossiter, Indiana county, June 10th, and December 11th in the same borough; both of these outbreaks were investigated and supervised by Dr. N. F. Ehrenfeld, County Medical Inspector. These cases necessitated a large amount of correspondence in consequence of the lack of familiarity of the local board with the necessities of such conditions.

Glen Cairn, Westmoreland county, toward the end of August; investigated by County Medical Inspector, Dr. S. M. Rinehart, of Allegheny county, in consequence of the fatal illness of County Medical Inspector Hammer, of Westmoreland county.

Castle Shannon, Allegheny county, in the latter part of August; investigated by County Medical Inspector Rinehart.

Rabbitstown, Franklin county, early in September; where scarlet fever and diphtheria were prevailing simultaneously, inspection made by Dr. Bonbrake, Medical Inspector of Franklin county.

Bernice and Mildred, Sullivan county; where scarlet fever prevailed in connection with measles, advice given by correspondence.

Kiester, Butler county, in the month of September; supervised by Dr. H. D. Hockenberry, County Medical Inspector, of Butler county.

Among the children attending the Union township school in Allegheny county; inspected and supervised by Dr. S. M. Rinehart, County Medical Inspector, September 25th.

October 6th, in Pine Grove, Schuylkill county; inspected and supervised by Dr. Daniel Dechert, County Medical Inspector.

Summerville, Jefferson county, October 12th. This borough was found to be without a Board of Health. Instructions were therefore sent to the president of the Borough Council to the effect that a Board should at once be organized, which was done.

Elkland, Pa., October 17th; outbreak controlled by the local Board of Health. Sharon Hill, Delaware county, October 22nd, where the outbreak of scarlet fever was associated with one of diphtheria; inspected and supervised by Dr. Robt. S. Maison, County Medical Inspector. This outbreak was almost entirely confined to the Charity Home at Sharon Hill, in which the proper precautions do not appear to have been taken when these diseases first appeared.

Penn Station, Westmoreland county, November 1st; attended to by correspondence.

Sheppton, Schuylkill county, November 2nd; attended to by correspondence.

Maplewood, Wayne county, November 15th; inspected by Dr. Harry B. Ely.

East Weissport, Carbon county, inspected and supervised by Dr. J. B. Tweedle, County Medical Inspector. In this case there was a concurrent epidemic of diphtheria. The township school board of Franklin township was organized as a Board of Health.

Wayne and Bryn Mawr, November 23rd, several of the cases occurring in St. Luke's school, Radnor township; inspected and supervised by Dr. Robt. S. Maison, County Medical Inspector, and Dr. Seneca Egbert, Health Officer of Radnor township. A suspicion that the outbreak might be traced to a milk supply was not justified by careful investigation.

November 23rd, Clay township, near Three Springs, Huntingdon county.

Fort Hunter, Pa., outbreak controlled by local authorities, December 4th.

Sunbury, Northumberland county, December 13th; outbreak controlled by local authorities in correspondence with the Commissioner.

Glen Moore, Chester County.

January 3, 1906, it was reported by the principal of a school that in consequence of the presence of scarlet fever in the village of Glen Moore, the schools had been closed.

Dr. J. C. McWhinney, County Medical Inspector, was instructed to inspect, and reported that twelve cases had occurred within three weeks, all of extremely mild character, the original case having been brought from Downingtown.

A promise of the formation of a Board of Health by the school directors was obtained and explicit instructions were given for the performance of their duties with regard to the outbreak which was soon terminated.

Maddensville, Huntingdon County.

February 14, 1906, it was reported that a serious epidemic of scarlet fever had broken out at Maddensville. The County Medical Inspector, Dr. A. B. Brumbaugh, was instructed to make an investigation.

The report showed there had been successive outbreaks and that both here and at Three Springs, the people had been extremely remiss in their observance of precautions and careless of quarantine regulations. The school boards were instructed as to their responsibilities in the matter, and in order to protect the public and impress the people with the gravity of the situation and the necessity for obeying regulations, the United States Postal Department was requested to cut off mail facilities until the conditions should improve.

The disease having occurred in a family occupying the same house with the post office, the post office was removed to another building. These measures were promptly effective, and within two weeks the mail service was resumed.

Allegheny Township, Westmoreland County.

February 19, 1908, information was received from a physician of an epidemic of this disease in Allegheny township, many cases having no physician, and in some instances the families running dairies.

Dr. Klingensmith, the acting County Medical Inspector, was sent to investigate and substantiated the report. Many children in one school had been

should be made as air-tight as possible. All desks, drawers and closets should be opened wide and all articles exposed. Books must be stood upon end and widely opened. Rugs, mats and articles of clothing, if any, must be hung up on cords.

The disinfecting may be accomplished by spraying with Liquor Formaldehyde, U. S. P. or Formalin.

Formaldehyde gas, however, is probably the best known aerial disinfectant, and one of the most effective and economical methods of generating it is as follows:

Ten ounces, by weight, of commercial Potassium Permanganate is required for each pint and a half of the solution, full strength. This is sufficient to disinfect 1,000 cubic feet of air space. In using formaldehyde gas for room disinfection it should be remembered that the room should always be both warm and moist. The latter may be accomplished by sprinkling the floors well or by suspending wet sheets about the room.

The following is the method:

The crystals of permanganate of potassium are to be placed in a tin, agate or iron pail the capacity of which is more than eight times the quantity of disinfectant to be used. This is necessary in order to prevent overflow from effervescence.

Place the pail containing the crystals at the centre of the room in a large pan with two blocks or bricks placed under the pail as considerable heat will be developed. The room having been properly sealed with strips of rubber adhesive plaster or gummed paper, quickly pour the solution of formaldehyde out of a wide mouthed vessel upon the crystals and leave the room with all possible speed.

Then carefully seal up the door of exit on the outside; including the key-holes and crevices about the lock knob, and allow the room to remain closed at least six hours. Then open all doors and windows, to admit both fresh air and sunlight, and allow free ventilation to continue for six hours.

At the same time privy vaults should be disinfected by throwing into them milk of lime made by adding one part of freshly slaked lime to four times its volume of water. This should be used as soon as made. For each pupil in attendance a half gallon of this mixture should be allowed. This preparation should not, however, be introduced into water closets, as it may obstruct the pipes. For this purpose a 5 per cent. solution of carbolic acid or a 3 per cent. solution of Liquor Formaldehydi U. S. P. or Formalin may be used. Careful attention should be given to the scrubbing and disinfection of coat closets.

Clothes closets, desks, etc., except those made of metal, should be washed with a cloth wrung out of a poisonous solution made by dissolving one quarter of an ounce (120 grains) of corrosive sublimate bichloride of Mercury in one gallon of hot water (1-500+).

Metal fixtures may be treated in a similar manner using a solution made by adding four (4) ounces of pure carbolic acid to a gallon of hot water (1-30+).

The balustrade of stairways and all knobs of doors should be wiped off daily with a cloth moistened with the formaldehyde or carbolic solution.

ISOLATION IN CASES OF CONTAGIOUS DISEASES.

Upon the appearance of contagious disease in a college dormitory, boarding school or seminary the patient should immediately be taken to a contagious disease hospital or an isolation building.

If this is not possible the patient and nurse or attendant must be strictly isolated in a room as remote as possible from other persons.

The room should be well lighted and ventilated and stripped of all unnecessary furnishings such as carpets, hangings, upholstered furniture.

A bath room and toilet should adjoin the sick room for the exclusive use of those isolated.

The nurse or attendant should wear only washable clothing which should include an additional gown and hood for the protection of the hair.

No article should leave the sick room until it has been thoroughly disinfected.

Secure any of the following disinfectants: Liquor Formaldehydi, (Solution of Formaldehydi U. S. P.), Formalin, Kreolin, Lysol, Tri-Kresol, or Chlorinated Lime, (chloride of lime or bleaching powder).

Make up disinfectant solutions from the above by adding three teaspoonsfuls of Kreolin, Lysol or Tri-Kresol or eight teaspoonsfuls of Liquor Formaldehydi, U. S. P., or Formalin, to a pint of water, or one-half pound of Chlorinated Lime to one gallon of water.

Suspend across the doorway of the room reaching to the floor, a sheet which should be sprinkled at frequent intervals, keeping it constantly moist with the

disinfectant solution used. The solution of carbolic acid previously mentioned is generally used for this purpose.

The solution of Lysol above mentioned makes a pleasant and most efficient disinfectant for the hands.

For the disinfection of alvine discharges and the discharges from the nose or any vomited matter the stock solution of lime, in amounts slightly in excess of the discharges, is most efficacious.

Bed and body clothing, towels, napkins, etc., should be soaked in a solution of chlorinated lime made by dissolving one quarter of a pound of chlorinated lime in ten gallons of water.

The tub containing the solution should be placed just outside the sick room door and the clothing deposited therein should be allowed to soak at least four hours before being removed to the laundry.

Eating utensils should be disinfected in any of the above solutions except lime.

The remnants of food sent to the sick room should be sprinkled with a disinfectant solution and burned.

Upon the recovery of a case of contagious disease the patient and nurse must each take an antiseptic bath, especial attention being paid to the disinfection of the hair and scalp.

After bathing they may be wrapped in a clean sheet handed them from without and step into a room within which their clothing has been recently disinfected to dress.

For the antiseptic bath use a solution made in the proportion of one quarter of a teaspoonful (15 grains) of corrosive sublimate (bichloride of mercury) to the gallon of hot water (1-4000+).

Following this each should take a plain soap and water bath and thereafter leave the infected room as detailed above.

For additional information see Instructions in Room Disinfection, and the Management of the various infections.

In case of small-pox, vaccination and re-vaccination of the entire school should be performed at once. Only vaccine virus known to be active should be used in such an emergency.

During the disinfection of school buildings the books should be strung on cords or stood on end with the leaves widely separated in a cloak room or closet where they will be subjected to the vapor of concentrated formaldehyde gas.

During the prevalence of communicable disease pupils should not be permitted to take school books to their homes.

Books known to have been taken to infected houses should be destroyed by burning.

RULES FOR NURSES AND ATTENDANTS IN CHARGE OF PERSONS SUFFERING FROM COMMUNICABLE DISEASES AND FOR HEALTH OFFICERS IN PERFORMING DISINFECTION.

In none of the vocations auxiliary to the Medical Profession have greater advances been made in late years than in that of nursing. In fact, in certain diseases, notably—in Typhoid Fever,—it has passed almost into a proverb that the nurse is as important as the doctor.

In all the dangerous communicable diseases indeed the knowledge and skill of the trained nurse is almost essential not simply for the welfare of the patient, but for the protection of the public. The faithfulness, intelligence and cheerful alacrity with which the nurses employed by this Department in its efforts for the suppression of Typhoid Fever performed their duties, more especially in the Nanticoke epidemic have been noteworthy, and I desire to express my appreciation of the value of their services.

It has been the desire of the Department to make the rules for their guidance as brief as is consistent with completeness and clearness, and to embody in them the most recent thought of sanitary science. Up to the present time there have been issued the following circulars for this purpose:

- No. 2—Typhoid Fever—Rules to be observed by Nurses and Attendants.
- No. 3—Diphtheria—Rules to be Observed by Nurses and Attendants.
- No. 4—Scarlet Fever—Rules to be Observed by Nurses and Attendants.
- No. 5—Epidemic Cerebro-Spinal Meningitis (Spotted Fever).
- No. 6—Directions for Room Disinfection.
- No. 8—Quarantine, Isolation and Disinfection.
- No. 11—Pulmonary Tuberculosis (Consumption)—Rules to be Observed by Patients, Nurses and Attendants.
- No. 13—Small-pox—Rules to be Observed in the Care and Management.
- No. 17—Measles and German Measles—Rules to be Observed by Nurses & Attendants.

No. 18—Whooping Cough—Rules to be Observed by Nurses and Attendants.

No. 19—Mumps—Rules to be Observed by Nurses and Attendants.

No. 20—Chicken-pox—Rules to be Observed by Nurses and Attendants.

TYPHOID FEVER.

Place the patient, if possible, in a well lighted and well ventilated room.

Remove from the room all superfluous articles of furniture and draperies.

Kill the typhoid germs contained in the discharges of the patient before they leave the sick-room to lay other fellow beings low with this disease.

Secure any of the following disinfectants: Kreolin, Lysol, Tri-Kresol, Chlorinated Lime (chloride of lime or bleaching powder), or a 40 per cent. solution of Formaldehyde which is preferred.

Make up disinfectant solutions from the above by adding three teaspoonfuls of Kreolin, Lysol or Tri-Kresol or eight teaspoonfuls of the 40 per cent. solution of Formaldehyde to a pint of water, or one-half pound of Chlorinated Lime to one gallon of water.

Keep constantly in the bed-pan, urinal, chamber or commode or vessel intended to receive the discharges from the bowels or bladder, a moderate quantity of the disinfectant solution selected, and after receiving the discharges add a quantity sufficient to equal the amount of the discharges.

Cover and remove the vessel and allow the contents to stand for one hour before emptying the same.

Never empty the discharges upon the surface of the ground, or into a stream, even though disinfected.

If the discharges are emptied into a water closet or privy they must be thoroughly disinfected first. They must never be buried until after being thoroughly disinfected and then never less than one foot deep nor within one hundred feet of a well or water course.

If a privy well is used, empty three gallons of any of the disinfectant solutions into it daily.

Keep constantly on hand a basin or other vessel containing one of these solutions mentioned for the purpose of washing your hands.

Wash your hands in the solution immediately after handling the patient, the discharges, or any of the body clothing.

Keep constantly in a convenient place a tub or other proper vessel containing a sufficient quantity of one of the disinfectant solutions in which to soak all of the patient's bed and body clothing.

(If Chlorinated Lime is used for this purpose, one-half pound should be diluted with eight gallons of water.)

Place all such clothing in this vessel immediately upon its removal from the bed or body of the patient, leaving it in the disinfectant solution for at least three hours, after which it should be boiled thoroughly for at least one hour.

Do not permit the use by others of drinking vessels or eating utensils used by the patient, until boiled for at least one hour.

Do not eat or permit others to eat scraps or remnants of food left by the patient.

Burn all such material at once.

Add a disinfectant solution to all water that has been used for bathing the patient, and dispose of it in the same manner as the body discharges.

Do not throw this water on the surface of the ground.

Thoroughly disinfect all discharges from the mouth and nose.

If received in vessels treat as all other discharges.

If received in handkerchiefs treat as bed clothing, or if received in old linen burn the same at once.

Thoroughly screen the room to exclude all flies and mosquitoes.

Destroy all insects in the room.

Exclude domestic animals.

Do not kiss the patient.

Do not encourage visitors to the sick room. Aside from their disturbing influence on the patient they may through carelessness contract the disease.

Boil all water used for domestic purposes.

Follow these rules during the entire illness, do not relax them during convalescence, but continue until entire recovery, as the specific germ of typhoid may exist in the stools or urine of typhoid patients for at least four weeks after the disappearance of the fever.

Upon the termination of the case sprinkle all carpets, rugs or washable bedding freely with a 40 per cent. solution of Formaldehyde. Roll up and allow to remain for twenty-four hours, then expose to fresh air and sunlight for twenty-four hours.

The room should be thoroughly disinfected after the recovery of the patient.

. DIPHTHERIA.

The patient should be confined to one room, with windows screened, which room should be well lighted and ventilated, preferably with Southern exposure and as remote as possible from other occupied rooms in the house.

Failure to observe this personal isolation will result in an absolute quarantine over the entire household.

This room should be stripped of curtains, carpets and upholstery and all other furniture not necessary for the comfort of the occupants. A sheet should be hung over the doorway, from top to bottom and kept moist with a poisonous solution, one part of Bichloride of Mercury to a thousand of water. To prepare this solution dissolve eight (8) Bichloride of Mercury tablets in one (1) gallon of hot water.

Secure any of the following disinfectants: A forty per cent. solution of Formaldehyde, Kreolin, Lysol, Tri-Kresol or Chlorinated Lime (Chloride of Lime or Bleaching Powder).

Make up disinfectant solutions from the above by adding three teaspoonfuls of Kreolin, Lysol or Tri-Kresol or eight tea spoonfuls of the forty per cent. solution of Formaldehyde to a pint of water, or one-half pound of Chlorinated Lime to one gallon of water. The forty per cent. solution of Formaldehyde is preferred.

Outside of the sick room door large receptacles containing one of the above mentioned solutions, except that made of Chlorinated Lime, should be kept standing for the reception of plates and eating utensils of all kinds.

Do not use drinking vessels or eating utensils from the sick room. Do not permit others to do so until they have been boiled for at least one hour.

Remnants of food left by the patient should be burned.

Keep constantly on hand a basin or other vessel containing one of the solutions mentioned, in which the hands should be washed immediately after handling any secretions or clothing from the patient.

Keep constantly in a convenient place a tub or other vessel containing a sufficient quantity of one of the disinfectant solutions, in which to soak all bed and body clothing.

(If Chlorinated Lime is used for this purpose, one-quarter pound should be mixed with eight gallons of water.)

Place all such clothing in this vessel immediately upon removal from the bed or from the body of the patient, and allow to soak for at least three hours after which they should be boiled for at least one hour.

Do not carry such clothing through the house, or store it with other soiled material.

Rags used for the collection of the discharges from the nose and throat should be burned.

The discharges from the bowels, or any vomited matter should be disinfected by the addition of a quantity of the standard solution of Chlorinated Lime (Chloride of Lime or Bleaching Powder) sufficient to more than cover the discharge, or if the discharges are liquid add a quantity equal in bulk. The mass should be stirred up and the vessel and contents should be allowed to stand at least one-half hour before emptying.

Never empty the discharges upon the surface of the ground or into a stream.

If a sewerage system exists, use it, but only after a thorough disinfection of the discharge.

If a privy well exists, use that, or bury the material one foot below the surface of the ground and not less than one hundred and fifty feet from a well or water course. It must be out of the reach of dogs.

Add a disinfectant solution to all water that has been used for bathing the patient, and dispose of it in the same manner as the body discharges.

If a privy well is used, empty three gallons of any of the disinfectant solutions into it daily.

The nurse or attendant should wear only washable clothing, with a protective covering for the hair. When released from the sick room she should take a disinfecting bath of Bichloride of Mercury 1 to 4,000, made by dissolving two Bichloride of Mercury tablets to the gallon of hot water, paying especial attention to the disinfection of the hair and scalp.

The air of the sick room cannot be disinfected during occupancy by the patient.

The practice of hanging up cloths saturated with carbolic acid or of placing saucers of Chlorinated Lime or proprietary disinfectants in the sick room is not only annoying to the patient, but utterly useless if not injurious.

An abundance of fresh air should be admitted to the room, but the patient should be protected from direct draughts.

When in the opinion of the attending physician the patient has recovered, and with the expiration of the period of quarantine the patient should be given an antiseptic bath under the direction of the physician, especial attention being paid to the disinfection of the hair and scalp.

The antiseptic bath may be prepared by dissolving two Bichloride of Mercury tablets in every gallon of hot water used. This should be followed by a plain soap and water bath.

After bathing, the patient should be wrapped in a clean sheet handed from without, step into a room, and dress in clothing that has been disinfected.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labelled and kept out of the reach of children.

Flies must be carefully excluded from the room and any that find entrance should be killed.

Dogs, Cats and other household pets should be quarantined and disinfected, and any found running loose should be killed.

After the removal of the patient, the sick room and everything it contains must be disinfected by Formaldehyde gas. Such articles as are not of great value should be burned; for instance, books and playthings.

The period of quarantine in cases of diphtheria shall be twenty-one (21) days from the date of onset or fourteen (14) days in cases where two negative bacteriological reports are obtained from cultures taken from the diseased area on successive days.

In the event of death from diphtheria, the funeral shall be strictly private and burial made within thirty-six (36) hours unless permission extending this time be granted by the health authorities.

The law forbids children or other persons living in a house in which diphtheria exists from attending school not only during the existence of the disease, but for thirty days after disinfection of the premises.

The use of the word school wherever it occurs in the regulations of the Department shall mean public, private, parochial, Sunday or other school.

The Department of Health has established depots for the free distribution of antitoxin to the poor at convenient points in every county, where it may be obtained on application by any registered physician. The nurse or attendant should consult the physician in charge about the use of the antitoxin to prevent their contracting the disease.

SCARLET FEVER.

The patient should be confined to one room, with windows screened, which should be well lighted and ventilated, preferably with Southern exposure and as remote as possible from other occupied rooms in the house.

Failure to observe this personal isolation will result in an absolute quarantine over the entire household.

This room should be stripped of curtains, carpets and upholstery and all other furniture not necessary for the comfort of the occupants. A sheet should be hung over the doorway, kept moist with a poisonous solution, one part Bichloride of Mercury to a thousand of water.

To prepare this solution dissolve eight (8) Bichloride of Mercury tablets in one gallon of hot water.

Secure any of the following disinfectants: A forty per cent. solution of Formaldehyde, Kreolin, Lysol, Tri-Kresol, or Chlorinated Lime (Chloride of Lime or Bleaching Powder).

Make up disinfectant solutions from the above by adding three teaspoonfuls of Kreolin, Lysol or Tri-Kresol or eight teaspoonfuls of the forty per cent. solution of Formaldehyde to a pint of water, or one-half pound of Chlorinated Lime to one gallon of water. The forty per cent. solution of Formaldehyde is preferred.

Outside of the door large receptacles containing one of the above mentioned solutions, except that made of Chlorinated Lime, should be kept standing for the reception of plates and eating utensils of all kinds.

Do not use drinking vessels or eating utensils from the sick room. Do not permit others to do so until they have been boiled for at least one hour. Remnants of food left by the patient should be burned.

Keep constantly on hand a basin or other vessel containing one of the solutions mentioned above, in which the hands should be washed immediately after handling any secretions or clothing from the patient.

Keep constantly in a convenient place a tub or other proper vessel containing a sufficient quantity of one of the disinfectant solutions, in which to soak all bed and body clothing.

(If Chlorinated Lime is used for this purpose, one-quarter pound should be mixed with eight gallons of water.)

Place all such clothing in this vessel immediately upon its removal from the bed or body of the patient and allow to soak for at least three hours after which it should be boiled for at least one hour.

Do not carry such clothing through the house, or store it with other soiled material.

Rags used for the collection of the discharges from the nose and throat should be burned.

The discharges from the bowels, or any vomited matter should be disinfected by the addition of a quantity of the standard solution of Chlorinated Lime (Chloride of Lime or Bleaching Powder) sufficient to more than cover the discharge, or if discharges are liquid add a quantity equal in bulk. The mass should be stirred up and the vessel and contents should be allowed to stand at least one-half hour before emptying.

Never empty the discharges upon the surface of the ground or into a stream.

If a sewerage system exists, use it, but only after thorough disinfection of the discharges.

If a privy well exists, use that or bury the material one foot below the surface of the ground and not less than one hundred and fifty feet from a well or water course. It must be out of the reach of dogs.

Add a disinfectant solution to all water that has been used for bathing the patient, and dispose of it in the same manner as the body discharges.

If a privy well is used, empty three gallons of any of the disinfectant solutions into it daily.

The nurse or attendant should wear only washable clothing with a protective covering for the hair. When released from the sick room, she should take a disinfecting bath of Bichloride of Mercury 1 to 4,000, made by dissolving two Bichloride of Mercury tablets to the gallon of hot water, paying especial attention to the disinfection of the hair and scalp.

The air of the sick room cannot be disinfected during its occupancy by the patient.

The practice of hanging up cloths saturated with carbolic acid or of placing saucers of Chlorinated Lime or proprietary disinfectants in the sick room is not only annoying to the patient, but utterly useless if not injurious.

An abundance of fresh air should be admitted to the room, but the patient should be protected from direct draughts.

When in the opinion of the attending physician the patient has recovered, and with the expiration of the period of quarantine the patient should be given an antiseptic bath under the direction of the physician, especial attention being paid to the disinfection of the hair and scalp.

The antiseptic bath may be prepared by dissolving two Bichloride of Mercury tablets in every gallon of hot water used. This should be followed by a plain soap and water bath.

After bathing, the patient should be wrapped in a clean sheet handed from without, and step into a room, and dress in clothing which has been disinfected.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labeled and kept out of the reach of children.

Flies must be carefully excluded from the room and any that find entrance should be killed.

Dogs, cats and other household pets should be quarantined and disinfected and any found running loose should be killed.

After the removal of the patient, the sick room and everything it contains must be disinfected by Formaldehyde gas. Such articles as are not of great value should be burned; for instance books and playthings.

The period of quarantine in cases of Scarlet fever shall be forty-two (42) days from the date of onset, with such additional time as may be necessary in the opinion of the attending physician for the complete recovery of the case.

In the event of death from scarlet fever, the funeral shall be strictly private and burial made within thirty-six (36) hours, unless permission extending this time be granted by the health authorities.

The law forbids children or other persons living in a house in which scarlet fever exists from attending school, not only during the existence of the disease, but for thirty (30) days after disinfection of the premises.

The use of the word school wherever it occurs in the regulations of the Department shall mean public, private, parochial, Sunday or other school.

EPIDEMIC CEREBRO-SPINAL MENINGITIS (SPOTTED FEVER.)

The patient should be confined to one room, with windows screened, well lighted and ventilated, and preferably with southern exposure, but always as remote as possible from other occupied rooms in the house. Failure to observe this personal isolation, will result in an absolute quarantine over the entire household.

The room should be stripped of curtains, carpets and upholstery, and all other furniture not necessary to the comfort of the occupants. A sheet should

be hung across the doorway, and kept moist with a solution, one part of Bichloride of Mercury to a thousand of water.

Secure any of the following disinfectants: a 40 per cent. solution of Formaldehyde, Kreolin, Lysol, Tri-Kresol or Chlorinated Lime (Chloride of Lime or Bleaching Powder), Bichloride of Mercury (Corrosive Sublimate), or Carbolic Acid.

Make up disinfectant solutions from the above by adding three teaspoonfuls of Kreolin, Lysol or Tri-Kresol or eight teaspoonfuls of a 40 per cent. solution of Formaldehyde to a pint of water, or one-half pound of Chlorinated Lime to one gallon of water. The solution of Formaldehyde is preferred.

For making Corrosive Sublimate solution (1-1000) dissolve eight (8) Bichloride of Mercury tablets in one gallon of hot water.

This solution is highly poisonous, and is injurious to plumbing and should be kept in earthen, glass or wooden vessels out of reach of children.

In making up solutions of carbolic acid, dissolve six ounces of pure carbolic acid in one gallon of hot water.

The nurse should wear a protective gown and hood, removing the same and carefully disinfecting exposed surfaces upon leaving the sick room.

The sputum (spit) should be carefully collected in a spit cup and disinfected by the use of a forty per cent. solution of Formaldehyde or the solution of Chlorinated Lime prepared as described above. Rags used in the collection of discharges from the nose and mouth should be promptly disinfected or burned.

Outside of the door, large receptacles containing one of the above mentioned solutions, except that made of Chlorinated Lime, should be kept standing for the reception of plates and eating utensils of all kinds, after which they should be scalded. All remnants of food should be burned.

Keep constantly on hand a basin or other vessel containing one of the solutions mentioned, in which the hands should be washed immediately after handling any secretions or clothing from the patient.

Keep constantly in a convenient place a tub or other proper vessel containing a sufficient quantity of one of the disinfectant solutions in which to soak all of the patient's bed and body clothing.

(If chlorinated Lime is used for this purpose, one-quarter pound should be mixed with eight gallons of water.)

Place all such clothing in this vessel immediately upon its removal from the bed or body of the patient, and allow them to soak for at least three hours, after which they should be boiled for at least one hour.

Do not carry such clothing through the house or store it with other soiled material.

The urine and bowel discharges or any vomited matter should be received in vessels containing an excess of a disinfectant solution, preferably Chlorinated Lime, eight ounces to the gallon of water.

These discharges should be removed, covered and allowed to stand one-half hour before emptying. A sewer may be used for the disposal of discharges if repeatedly flushed after use, or the discharges may be emptied into a privy vault but such material should never be thrown on the surface of the ground.

Add a disinfectant solution to all water that has been used for bathing the patient, and dispose of it in the same manner as the body discharges.

A broom or dry duster should never be used in such a patient's room on account of the danger of disseminating the disease by dust which should be removed with a damp cloth.

In the daily cleaning of the room, except metal fixtures, use the solution of corrosive sublimate or the solution of carbolic acid, the latter of which may also be used on metals.

The nurse or attendant should carefully disinfect the hands after any attention to the patient and immediately after they have become soiled by any discharges.

The use of a nasal inhaler by the nurse or attendant in the sick room is to be recommended, as is the spraying of the mouth, nose and throat at frequent intervals with equal parts of water and Liq. Antisepticus, U. S. P.

Unnecessary visits to the sick room by members of the family should be discouraged and kissing the patient should be positively forbidden.

When quarantine is to be lifted the occupants of the household should take an antiseptic bath under the direction of the doctor, especial attention being paid to the disinfection of the hair and scalp.

For the antiseptic bath use a solution made in the proportion of two Bichloride of Mercury tablets to the gallon of hot water (about 1-4000) to be followed by a plain soap and water bath.

After bathing they should be wrapped in a clean sheet handed from without and step into a room within which their clothing has been recently disinfected, to dress.

In the event of death from epidemic cerebro-spinal meningitis, the funeral shall be strictly private and burial made within thirty-six (36) hours unless permission extending this time be granted by the health authorities.

Following the recovery, death or removal of such a case, the room and its contents must be disinfected with Formaldehyde gas.

Such articles as are not of great value should be burned; for instance, books and playthings.

Those suffering from the disease and those exposed to the disease within such a household shall be excluded from school during the illness of the patient and shall be readmitted only upon the certificate of a physician attesting to their recovery and freedom from infection.

The use of the word school wherever it appears in the regulations of the Department shall mean public, private, parochial, Sunday or other school.

DIRECTIONS FOR ROOM DISINFECTION.

When quarantine is to be raised, providing the attending physician has been consulted and approves, the patient and nurse should each be given an antiseptic bath, paying particular attention to the disinfection of the hair and scalp.

A mixture made by dissolving Corrosive Sublimate (Bichloride of Mercury) in the proportion of 60 grains (an even teaspoonful) to a gallon of water makes a desirable solution for the purpose.

They should be wrapped in clean sheets handed them from outside, and then step into a non-infected room to dress.

When the sick room is vacated it should be hermetically sealed with strips of gummed paper or adhesive plaster; closing flues, chimney places and all visible cracks and crevices about walls, doors and windows.

Open up beds, stand mattresses on end, open closets, bureau drawers, trunks, etc., and spread their contents about the room.

Fabrics, especially carpets, bed and body clothing fully unfolded, should be suspended upon chairs, clothes-lines, bedsteads, etc., exposing all to the fumes of Formaldehyde gas, which is the most efficient agent for room disinfection in use at the present time.

It is a powerful germ destroyer, yet it causes practically no injury to delicate fabrics or room furnishings.

In using Formaldehyde gas for disinfection, the air of the room should be both warm and moist. The latter may be accomplished by suspending wet sheets about the room.

An effective and economical method of generating this gas is by the addition of formaldehydi U. S. P. or Formalin to Potassium Permanganate.

Six and one-half ounces, by weight, of commercial Potassium Permanganate crystals is required for each pint of Liquor Formaldehydi U. S. P. or Formalin in disinfecting every 1,000 cubic feet of room space.

Briefly, this method may be described as follows:

Place the crystals in a tin, agate or iron pail, the capacity of which is over eight times the quantity of disinfectant to be used.

This is necessary to prevent overflow of the solution from effervescence.

Place the pail containing the crystals at the center of the room in a dish pan with a nonconductor, such as a stove lid or bricks placed under the pail, as considerable heat without flame is given off upon mixing the chemicals.

When the room is properly sealed, quickly pour the Formaldehyde solution upon the crystals and make a hasty retreat.

Carefully seal the door of exit, including the keyhole and crevices about the door knob and allow the room to remain closed at least six hours.

To recapitulate:

Always place the Potassium Permanganate crystals in the pail first.

Pour the Formaldehyde solution from a wide mouth vessel that it may be done quickly.

Seal the door of exit promptly as over 80 per cent. of the gas is liberated during the first five minutes.

After disinfection soak bed and body clothing, etc., in a solution made by dissolving four (4) ounces of Chlorinated Lime (chloride of lime or bleaching powder) in ten gallons of water.

After remaining in this solution for two hours they should be removed and boiled at least one hour.

After the necessary cleaning the windows should be opened and the room thoroughly aired for two days before it is again occupied.

Poisonous drugs such as corrosive sublimate, carbolic acid, etc., should be plainly labeled and kept beyond the reach of children.

SULPHUR DISINFECTION.

Sulphur is regarded by many authorities as very efficacious in disinfection after cases of small-pox and is used frequently in conjunction with Formaldehyde disinfection after this disease.

Five pounds of flowers of sulphur should be used for every 1,000 cubic feet of air space.

Place the sulphur in an iron kettle or pan resting upon bricks within a tub containing sufficient water to exclude the possibility of igniting objects nearby.

The sulphur may be ignited by hot coals or by lighting a small quantity of alcohol which is placed in the center of the sulphur. A hasty exit should be made by the disinfector.

The room should be closed at least twenty-four hours.

It should be remembered that sulphur will tarnish metals and is injurious to the coloring matter and tensile strength of fabrics.

After small-pox cases mattresses used by such patients or books exposed to the infection should be burned after disinfection.

Upon opening such a room the wall paper should be scraped off, and the walls, ceilings and wood work washed with a solution made by dissolving one-fourth of an ounce (120 grains) of corrosive sublimate (Bichloride of Mercury) in a gallon of hot water (1-480). After standing for one day all these surfaces must be scrubbed with soap and water, after which the room should be freely ventilated for three days before occupancy.

Every part of a household frequented by a small-pox patient at any time of his illness, should be treated as above.

Special attention should be paid to hand railings, door knobs, etc. If such a person has used an outside privy before the establishment of quarantine, the wood work should be thoroughly scrubbed with the corrosive sublimate solution as advised above.

Scraps of paper should be thrown into the vault and the contents covered with at least two inches of freshly burned unslaked lime, to which is then added the same amount of fresh oil.

Whenever a privy receives the discharges from a small-pox patient, even though disinfected, the vault should be treated as above after the recovery of the case or cases.

All domestic animals should be placed in absolute quarantine and when found running at large should be promptly exterminated. When quarantine is lifted they should be disinfected as thoroughly as the patients.

QUARANTINE, ISOLATION AND DISINFECTION.

Instructions for the Regulation of Quarantine, Isolation and Disinfection in the Several Communicable Diseases.

For the Guidance of Health Officers.

Absolute quarantine includes first, absolute prohibition of entrance to or exit from the building or conveyance except by officers or attendants authorized by the health authorities, and the placing of guards if necessary to enforce this prohibition; second, the posting of a warning placard stating the name of the disease, in a conspicuous place or places on the outside of the building or conveyance; third, the prohibition of the passing out of any object or material from the quarantined house or conveyance; fourth, provision for conveying the necessities of life under careful restrictions to those in quarantine.

Modified quarantine includes first, prohibition of entrance and exit, as in absolute quarantine except against certain members of the family authorized by the health authorities to pass in and out under certain definite restrictions; second, the placing of a placard as before; third, isolation of a patient and attendant; fourth, prohibition of the carrying out of any object or material unless the same shall have been thoroughly disinfected.

Absolute isolation includes first, the confinement of the patient and attendants to one apartment or suite of apartments, to which none but authorized officers or attendants shall have admission; second, the prohibition of passing out of the sick room of any object or material, until the same has been thoroughly disinfected; third, protection of the air of the house by hanging a sheet, kept constantly moist with a disinfectant solution, over the doorway of the patient's room or rooms and reaching from the top to the floor.

Modified isolation includes the confinement of the patient and attendants to one room or suite of rooms to which none but authorized officers or attendants shall have admission, but allowing the attendants to pass out of the room after disinfection of person and complete change of clothing; second, the

prohibition of passing any object or material out of the sick room until it has been disinfected; third, protection of the doorway as before.

Special isolation includes first, prohibition of patient from attending any place of public assemblage; second, the providing of separate eating utensils for the patient; third, prohibition of sleeping with others or using same towels or napkins.

Disinfection may be either complete or partial.

By complete disinfection is meant disinfection during illness, under direction of attending physician, of patient's body, of all secretions, of all discharges of patient and of all articles of clothing and utensils used by patient; and after recovery, death or removal, the disinfection of walls, wood work, furniture, bedding, etc. (See Department's circular on Room Disinfection.)

By partial disinfection is meant, disinfection of discharges or excretions of patients and their clothing and the room or rooms occupied by the patient during illness.

INSTRUCTIONS FOR THE MANAGEMENT OF CASES OF COMMUNICABLE DISEASES AND CONTACTS.

Diseases to be Reported.	Quarantine.	Isolation.	Disinfection.	Placard.	Quarantine Period.	Period of Exclusion from School. (a).	Exclusion from School After Illness.	Remarks.
Actinomycosis.	.....	.....	.....	.....	.....	.....	.....	.....
Anthrax.	.....	.....	.....	.....	.....	.....	.....	.....
Epidemic Plague.	Absolute.	Special.	Partial.	.....	.....	.....	.....	.....
Cerebro-Spinal Fever (Epidemic).	Modified.	Absolute.	Complete.	.....	(b)	.....	.....	.....
Chicken-pox.	.....	Modified.	Complete.	.....	.....	.....	.....	.....
Cholera.	Absolute.	Special.	Partial.	.....	.....	.....	.....	.....
Diphtheria.	Modified.	Absolute.	Complete.	.....	(b)	21 days (d).	30 days (e).	Immunize others exposed by the use of Diphtheria Antitoxin.
Epidemic Dysentery.	.....	.....	.....	.....	21 days (c).	.....	.....	.....
Erysipelas.	.....	Special.	Partial.	.....	.....	.....	.....	.....
Glandular Fever.	Modified.	Special.	Complete.	.....	.....	.....	.....	.....
Glandular Measles.	.....	Special.	Partial.	.....	.....	.....	.....	.....
Hydrophobia.	.....	Special.	Partial.	.....	.....	.....	.....	.....
Leprosy.	Absolute.	Absolute.	Complete.	.....	(b)	.....	.....	County aid in treatment (Act May 31, '05).
Malaria Fever.	.....	.....	.....	.....	.....	.....	.....	Mosquito exclusion.
Measles.	Modified.	Modified.	Complete.	.....	.....	.....	.....	.....
Mumps.	.....	Special.	Partial.	.....	.....	.....	.....	.....
Pneumonia (true).	.....	Special.	Partial.	.....	.....	.....	.....	.....
Fuerperal Fever.	.....	Special.	Complete.	.....	.....	.....	.....	.....
Relapsing Fever.	Modified.	Modified.	Complete.	.....	.....	.....	.....	.....
Scarlet Fever.	Modified.	Absolute.	Complete.	.....	(b)	.....	.....	.....
Small-pox.	Absolute.	Absolute.	Complete.	.....	45 days (f).	.....	.....	.....
Tetanus.	.....	Absolute.	Complete.	.....	30 days (f).	.....	.....	.....
Typhoid.	.....	Special.	Partial.	.....	.....	.....	.....	.....
Typhoid Fever.	.....	Special.	Partial.	.....	.....	.....	.....	.....
Typhoid Fever.	.....	Special.	Complete.	.....	.....	.....	.....	.....
Whooping Cough.	Absolute.	Absolute.	Complete.	.....	(b)	.....	.....	.....
Yellow Fever.	Modified.	Special.	Partial.	.....	.....	.....	.....	.....
Yellow Fever.	Absolute.	Absolute.	Complete.	.....	(b)	.....	.....	.....
Yellow Fever.	.....	.....	.....	.....	.....	.....	.....	.....

(a) School—Public, private, parochial, Sunday or other school.

(b) Quarantine continued until released by written order of the Commissioner of Health.

(c) Or 14 days from onset where two negative cultures are obtained from the diseased area on successive days, with such additional time as may be necessary, in the opinion of the attending physician, for the complete recovery of the case.

(d) Cases and contacts readmitted to school on certificate of physician, or Health Officer in cases where no physician has been or is in attendance which sets forth that all precautions have been observed to prevent the spread of disease.

(e) Cases and contacts readmitted to school on certificate of physician, which sets forth that thirty days have elapsed since recovery, death or removal of the last case and the disinfection of the premises.

(f) Destruction of Sputum by fire or germicides.

Mosquito exclusion.

PULMONARY TUBERCULOSIS (CONSUMPTION.)

Those suffering from Consumption should remember that the disease in many instances is curable and far more important they should never forget that the disease is preventable.

Since the specific micro-organism (Tubercle Baccillus) is known to be the cause of the disease and not often if ever inherited—it is of vital importance to destroy this infective agent wherever evidence of its presence is discovered in stamping out the disease.

In addition to the proper care of the patient's discharges the ingestion of infected food stuff must be considered.

It is certain that the milk of cows suffering from Tuberculosis of the udder is usually infectious and the milk from cattle so affected should be condemned as unfit for use.

The sufferer from Tuberculosis who would recover must first learn that it is essential to disinfect the sputum.

If patients are careless with regard to the care of their sputum (spit) they are frequently reinfected and infect others.

Every drop of sputum should be collected and disinfected, preferably by burning. Whenever possible use a spit cup; if made of tin or china add a small quantity of water and a teaspoonful of ordinary lye for the reception of the sputum.

Many cups are lined inside with a paper spit cup which when full may be removed and burned.

All such cups should have a handle so that the vessel can be held close to the mouth preventing soiling of the fingers and sides of the cup.

It should also be provided with a cover for the purpose of excluding flies and other insects which are capable of carrying the infection.

After emptying a cup of any kind always scald it in boiling water before it is again used.

Rags and handkerchiefs should not be used to spit in; paper napkins are preferable and should always be burned before the sputum becomes dry.

While traveling paper napkins so used may be kept in a paper bag and burned at a convenient time.

Patients suffering from this disease should occupy a constantly well ventilated sunny room divested of unnecessary furniture such as carpets and hangings. The outer covering on such a patient's bed should be of material that may be frequently boiled and washed.

Never allow spit to be deposited on bed or body clothing, carpets or furniture, or in fact in any place where it may become dry. Patients should always sleep alone and use individual eating utensils which should be scalded after use.

Male patients should also be clean shaven as the beard, especially about the mouth, is invariably infected and is undoubtedly responsible for reinfection of many cases.

Clothing, towels, handkerchiefs or other personal effects used by a consumptive should not be used in common by others.

Kissing and hand shaking should be avoided by such patients and when the coughing cannot be controlled they should carefully cover the mouth and nose with a paper napkin during the same.

The hands should be washed with soap and water before eating and always immediately after being soiled with sputum.

A consumptive mother should not nurse an infant or occupy the same sleeping chamber. The bowel discharges of patients having abdominal pain and intractable diarrhoea should be disinfected by the addition of an equal amount of a solution made by dissolving eight ounces of chlorinated lime (chloride of lime, bleaching powder) in one gallon of water.

Occupations requiring the handling of foodstuffs or those necessitating confinement in crowded, ill-ventilated or dusty quarters should never be followed by such a patient.

The greatest enemies of Tuberculosis are pure air and sunlight.

Such a patient should lead an outdoor life exercising only on the advice of a physician and never to the extent of fatigue.

A broom or dry duster should never be used in such a patient's room.

Cleansing, except for metal fixtures should be done with a cloth moistened in a solution made by dissolving one teaspoonful, (60 grains) of corrosive sublimate (Bichloride of Mercury) in one gallon of water (1-1000+).

Corrosive Sublimate is very poisonous when taken internally and care should be exercised in its use.

Room fixtures, bed and body clothing used by such a patient should be taken out of doors frequently and exposed to pure air and sunlight for several hours.

It is now known beyond question of doubt that many people contract Tuberculosis in dark, ill-ventilated sleeping rooms that have previously been occupied by a person suffering from the disease. It is therefore imperative that

such a room should be plainly furnished permitting of ready cleansing as noted above and upon the recovery or removal of such a patient the room and its contents should be thoroughly disinfected (See Room Disinfection).

SMALLPOX.

Smallpox is one of the most readily communicable of all infections. It may be communicated at any period from the first symptoms of the disease to the falling off of the last scab or crust.

While it is probable that the danger is less before the appearance of the eruption, it is nevertheless of importance to isolate exposed individuals on the first suspicious symptoms of the disease. Upon the discovery of a case suspected of being smallpox all exposed persons must be promptly vaccinated and kept under daily observation by health authorities until a diagnosis has been reached.

The disease does at times appear in a very mild form, being regarded by many people and some physicians as varioloid and in many instances pronounced chicken-pox, but it should be remembered that the most malignant type of the disease may be contracted from a mild case of smallpox be it designated as such or as varioloid which many people have the erroneous idea is not smallpox.

Any considerable outbreak of an acute disease accompanied by fever and an eruption of pocks among adults in any community should be regarded with a great deal of suspicion for it is probable that the disease is smallpox, however mild its manifestation.

This should emphasize the importance of physicians and householders reporting cases of chickenpox to the health authorities.

ISOLATION.

Whenever it may be possible, cases of smallpox should be removed at once to a contagious disease hospital for treatment.

All communities should have such a building available in a location remote from other habitations where strangers and others suffering from smallpox and having no other place of refuge may be taken for treatment.

Any isolated building suitable for occupancy may be rented or in great emergency seized and used as a hospital, and the damages adjusted with the owner later.

When it is impossible to remove cases to an isolation hospital the buildings must at once be quarantined and the case be absolutely isolated to a single room, however mild the disease may be, until the final disinfection of the patient, nurse or attendant, effects and premises have been accomplished.

Isolation of all cases of smallpox from other members of the family although quarantined should always be observed for the purpose of limiting the dissemination of the contagion throughout the entire building as much as possible, thereby saving unnecessary destruction of household effects.

The nurse or attendant should wear washable clothing and over all, a washable gown with hood attachment for the protection of the hair. The gown and hood should be removed and exposed surfaces disinfected when leaving the sick room even though temporarily.

The sick room should be well lighted, ventilated, screened from flies and divested of all unnecessary furniture, carpets and hangings. Suspend over the doorway of the room, reaching from the top of the floor, a sheet, which should be kept moist with a solution made by dissolving eight (8) Bichloride of Mercury tablets in a gallon of hot water.

Physicians are expected to carry in a bag, kept especially for this purpose, a washable gown, together with overshoes, which after the visit should be sprinkled liberally with at least two ounces of a forty per cent. solution of Formaldehyde, then rolled into a compact bundle and the fabrics boiled at frequent intervals.

A room in the dwelling should be set apart for the exclusive use of the physician, in which he may make the necessary changes of clothing and properly disinfect exposed surfaces, including hair and beard. The nurse or attendant should show unmistakable evidence of having had smallpox or else of having been successfully vaccinated within five years, and should be again vaccinated prior to assuming charge of a smallpox case.

QUARANTINE AND DISINFECTION DURING ILLNESS.

Houses infected with smallpox shall, in all cases be conspicuously placarded and the quarantine of their occupants shall be absolute.

When establishing quarantine all members of the household, including parary residents after the appearance of the eruption and others who have been exposed shall be at once located and quarantined.

Such persons may however, after subjecting themselves to vaccination and thorough disinfection of clothing and person, under the supervision of an authorized agent of the Department of Health be parolled under observation during a period of eighteen (18) days from the date of last exposure.

By "parole under observation" is meant that all persons so liberated shall have their temperature taken daily by a physician appointed by an authorized agent of the Department of Health, who shall promptly quarantine any such person presenting any physical sign or symptom of smallpox until it is certain that such person is not suffering from that disease.

Upon the refusal of any person exposed to smallpox to be vaccinated and to perform the required disinfection as detailed above, such person or persons shall be subject to absolute quarantine for a period of eighteen (18) days from the date of last exposure together with the minimum period of quarantine and such additional time as may be necessary for their complete recovery in the event of their contracting the disease.

In all cases where it is apprehended that attempts to avoid quarantine regulations will be made a sufficient number of guards should be placed over the premises to insure strict compliance with the same.

In all cases provision shall be made whereby those in quarantine will be provided with necessary food, medicine, etc. A day and a night guard are necessary for the delivery of such supplies, the transmission of oral messages from the household and to answer emergency calls, for physicians, and other purposes.

Provisions, medicine, supplies, mail matter, etc., shall be left by the guard in a convenient location where they may be reached by the inmates without the latter going outside the infected house.

No article of any sort whatsoever shall be removed from the premises.

All communication between quarantined persons and the public should be by word of mouth and never written.

Domestic pets of such a household should be confined to the house and when found running at large should be promptly exterminated. When quarantine is lifted they should be disinfected as thoroughly as the occupants of the premises.

Prior to patient's release from an isolated room or from quarantine they should be free from every vestige of the disease.

The skin should be free from pocks, smooth, save for pitting, and perfectly healed wherever invaded.

Particular attention should be given the scalp, palms of the hands and soles of the feet in the removal of scabs and mahogany colored pocks.

This is also true of the cavities of the nose and ears and careful attention should be given these details.

When quarantine is to be lifted the occupants of the household should take an antiseptic bath, especial attention being paid to the disinfection of the hair and scalp.

For the antiseptic bath use a solution made in the proportion of two Bichloride of Mercury tablets to the gallon of hot water, this to be followed by a plain soap and water bath.

After bathing they should be wrapped in a clean sheet, handed them from without, and step into a room and dress in clothing that has been disinfected.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labeled and kept out of reach of children.

No article should leave the sick room until it has been thoroughly disinfected.

Secure any of the following disinfectants: A forty per cent. solution of Formaldehyde, Kreolin, Lysol or Chlorinated Lime (Chloride of Lime or Bleaching Powder).

Make up disinfectant solutions from the above by adding three teaspoonfuls of Kreolin, Lysol or Tri-Kresol or eight teaspoonfuls of a forty per cent. solution of Formaldehyde, to a pint of water or one-half pound of Chlorinated Lime to one gallon of water.

All discharges from the patient, of whatever kind, must be received in vessels containing a sufficient quantity of a disinfectant solution to cover and thoroughly disinfect them. Cloths soiled with pus or blood from ulcerating or suppurating surfaces or pustules must be burned.

The discharges may be emptied in a sewer after disinfection, but in case this is done the closet should be repeatedly flushed to prevent injury to the plumbing from the chemicals used.

If a privy vault is used empty one and a half (1½) pounds of Chlorinated Lime (Chloride of Lime or bleaching powder) dissolved in three gallons of water into the vault daily.

A large tub should be placed outside the door of the sick room for the purpose of disinfecting every article of clothing before it is carried through the use. A standard solution of Chlorinated Lime (Chloride of Lime, bleaching

powder) one-quarter ($\frac{1}{4}$) of a pound to eight (8) gallons of soft water, should be kept in the tub and renewed at frequent intervals. All towels, napkins, sheets, bandages and clothing used either by the patient, or the attendant, should be immediately immersed in the tub and remain at least three hours after which they should be boiled for at least one hour. Cups, plates, spoons and other eating utensils before leaving the sick room should be immersed for an hour in a solution of Carbolic Acid made by dissolving six (6) ounces of pure Carbolic Acid in a gallon of hot water and then boiled for half an hour. All food or drink exposed to infection and not consumed by the patient should be sprinkled with this solution of carbolic acid and then, burned or buried.

Following the recovery, death or removal of the patient, the premises must be thoroughly disinfected with formaldehyde gas combined with sulphur disinfection. Mattresses and bedding soiled by discharges should be burned as well as books and other inexpensive articles handled by patients.

The minimum period of quarantine in cases of small-pox shall be thirty (30) days from onset together with such additional time as may be necessary for the complete recovery of the case and absolute freedom from contagion.

In the event of death from smallpox the funeral shall be strictly private and burial made within thirty-six (36) hours.

The law forbids children or others, living in a house in which smallpox appears, from attending school prior to the elapse of thirty (30) days after the recovery, death or removal of the last case and the disinfection of the premises.

The use of the word school wherever it occurs in the regulations of the Department, shall mean public, private, parochial, Sunday or other school.

MEASLES AND GERMAN MEASLES.

Measles is by no means the harmless disease it is thought to be by many people, since it is shown by the statistics of the Department of Health that in some epidemics more children die from measles than from Scarlet Fever.

For this reason it is imperative that a physician be summoned and every possible effort made to check the spread of the disease.

Although German measles is comparatively a harmless disease, its management for every practical purpose should be essentially the same as that of measles.

The patient should be confined to one room with windows screened, which room should be well lighted and ventilated and as remote as possible from other occupied rooms in the house.

There should be neither carpets, curtains or upholstered furniture in the room. In order to confine the infection to this room a sheet kept constantly moist with a solution of corrosive sublimate (Bichloride of Mercury 1-1000) should be hung over the doorway.

To prepare this solution, dissolve eight (8) Bichloride of Mercury tablets in one gallon of hot water.

An abundance of fresh air should be admitted to the room, but the patient should be protected from direct draughts and strong light.

The air of the sick room cannot be disinfected during its occupancy by the patient.

The practice of hanging up cloths saturated with carbolic acid or placing saucers of Chlorinated Lime or proprietary disinfectants in the sick room is not only annoying to the patient, but utterly useless if not injurious.

All bed and body clothing, including handkerchiefs, towels, napkins, cloths, etc., used for the collection of discharges from the mouth and nose should be disinfected before leaving the sick room.

For this purpose, use a solution made by dissolving one-quarter ($\frac{1}{4}$) of a pound of Chlorinated Lime (bleaching powder) in eight gallons of water, allowing such articles to remain in the solution at least three hours before being washed.

Eating utensils should be scalded and remnants of food destroyed by burning.

None but those actually in attendance upon the patient should be permitted to enter the sick room or come in contact with the patient.

The nurse or attendant should wear only washable clothing with a protective gown and covering for the hair and when leaving the sick room should remove such protective garments and disinfect exposed surfaces.

When the attending physician announces recovery, the patient should be given an antiseptic bath under the direction of the doctor, especial attention being paid to the disinfection of the hair and scalp.

The antiseptic bath may be prepared by dissolving two Bichloride of Mercury tablets to the gallon of hot water (about 1-400), this to be followed by a plain soap and water bath. After bathing, the patient should be wrapped in a clean sheet handed from without and step into a clean room to dress.

Following the recovery, death or removal of the patient, the sick room and its contents should be disinfected with formaldehyde gas. This gas may be liberated by the addition of a forty per cent. solution of formaldehyde to potassium permanganate. Six and one-half (6½) ounces, by weight, of commercial potassium permanganate crystals is required for each pint of the formaldehyde solution. This amount of chemicals is sufficient to disinfect a room ten feet square. In using Formaldehyde gas for disinfection, the air of the room should be both warm and moist. The latter may be accomplished by sprinkling the floor or by suspending wet sheets around the room.

Place the crystals in a tin, agate or iron pail, the capacity of which is over eight times the quantity of disinfectants to be used. This is necessary to prevent over-flow of the solution due to effervescence.

The pail containing the crystals should be placed at the centre of the room in a tub or dish pan with a non-conductor such as a stove lid or bricks under it, since considerable heat without flame is given off on mixing the chemicals.

In the preparation of the room for such disinfection, it should be sealed with strips of gummed paper or surgeons' plaster, closing flues, ventilators, chimney places and all visible cracks and crevices about walls, doors and windows. Open up beds, stand mattresses on end, open closets, bureau drawers, trunks, etc., and spread their contents about the room.

Fabrics, especially carpets, bed and body clothing fully unfolded, should be suspended upon chairs, clothes-lines, bedsteads, etc., exposing all to the fumes of the gas.

When the room is properly sealed, pour the Formaldehyde solution upon the crystals from a wide mouthed vessel that it may be done quickly and make a hasty retreat.

Carefully seal the door of exit, including the key-hole and crevices about the door knob and allow the room to remain closed at least six hours.

After disinfection soak bed and body clothing, etc., in a solution made by dissolving four (4) ounces of Chlorinated Lime (chloride of lime or bleaching powder) in eight (8) gallons of water.

After remaining in this solution for three hours they should be removed and boiled at least one hour.

After the necessary cleaning the windows should be opened and the room thoroughly aired for two days before it is again occupied.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labelled and kept out of the reach of children.

Those suffering from this disease will not be permitted to attend school prior to the issuance of a certificate of recovery by the attending physician, or in cases where no physician has been in attendance, a certificate from the Health Officer which sets forth that all precautions have been observed to prevent the spread of disease.

Other children in the households not contracting the disease at the end of twenty-one (21) days from the date of the first appearance of the disease in the house may return to school provided they have not been exposed to the sick for that length of time.

The use of the word school, wherever it occurs in the regulations of the Department shall mean, public, private, parochial, Sunday or other school.

WHOOPIING COUGH.

Whooping-cough, with its associated complications is a very fatal disease, especially in infants and young children, therefore it is always advisable to summon a physician and make every possible effort to prevent the spread of the disease.

The patient should be kept entirely away from other children or adults who have not had the disease.

If confined to a room, the windows should be screened, and all upholstered furniture and curtains should be taken out.

An abundance of fresh air should be admitted to the room, but the patient should be protected from direct draughts.

The air of the sick room cannot be disinfected during its occupancy by the patient.

The practice of hanging up cloths saturated with carbolic acid or of placing saucers of Chlorinated Lime or proprietary disinfectants in the sick room is not only annoying to the patient, but utterly useless, if not injurious.

All bed and body clothing, including handkerchiefs, towels, napkins, cloths, etc., used for the collection of discharges from the mouth and nose, or soiled by vomited matter, should be disinfected before being taken from the sick room.

For this purpose, use a solution made by dissolving one-quarter ($\frac{1}{4}$) of a pound of Chlorinated Lime (bleaching powder) in eight (8) gallons of water, allowing such articles to remain in the solution at least three hours before being washed.

All eating utensils should be scalded and remnants of food burned.

Following the recovery, death or removal of the patient the sick room and its contents should be disinfected with formaldehyde gas. This gas may be liberated by the addition of a forty per cent. solution of formaldehyde to potassium permanganate. Six and one-half ($6\frac{1}{2}$) ounces, by weight, of commercial potassium permanganate crystals is required for each pint of the formaldehyde solution. This amount of chemicals is sufficient to disinfect a room ten feet square. In using Formaldehyde gas for disinfection, the air of the room should be both warm and moist. The latter may be accomplished by sprinkling the floor or by suspending wet sheets around the room.

Place the crystals in a tin, agate or iron pail, the capacity of which is over eight times the quantity of disinfectants to be used. This is necessary to prevent over-flow of the solution due to effervescence.

The pail containing the crystals should be placed at the centre of the room in a tub or dish with a non-conductor such as a stove lid or bricks under it, as considerable heat without flame is given off upon mixing the chemicals.

In the preparation of the room for such disinfection, it should be sealed with strips of gummed paper or surgeons' plaster, closing flues, ventilators, chimney places and all visible cracks and crevices about walls, doors and windows. Open up beds, stand mattresses on end, open closets, bureau drawers, trunks, etc., and spread their contents about the room.

Fabrics, especially carpets, bed and body clothing fully unfolded, should be suspended upon chairs, clothes-lines, bedsteads, etc., exposing all to the fumes of the gas.

When the room is properly sealed, pour the Formaldehyde solution upon the crystals from a wide mouthed vessel that it may be done quickly and make a hasty retreat.

Carefully seal the door of exit, including the key-hole and crevices about the door knob and allow the room to remain closed at least six hours.

After the necessary cleaning the windows should be opened and the room thoroughly aired for two days before it is again occupied.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labelled and kept out of the reach of children.

Those suffering from this disease will not be permitted to attend school prior to the issuance of a certificate by the attending physician, or in cases where no physician has been in attendance, a certificate from the Health Officer which sets forth that all precautions have been observed to prevent the spread of disease.

Other children in the households not contracting the disease at the end of twenty-one (21) days from the date of the first appearance of the disease in the house may return to school provided they have not been exposed to the sick for that length of time.

The use of the word school, wherever it occurs in the regulations of the Department shall mean, public, private, parochial, Sunday or other school.

MUMPS.

Mumps, even uncomplicated, is a painful affection, although not a dangerous one, but since the complications which often arise are of a serious nature, it is always advisable that persons so afflicted should be under the care of a physician.

In order to protect others from infection, it is advisable to confine the patient to one room, with windows screened, which room should be well lighted and ventilated. If possible a room with Southern exposure and remote from other occupied rooms in the house.

None but those actually in attendance upon the patient should be permitted to enter the sick room or come in contact with the patient.

Eating utensils should be scalded and remnants of food destroyed by burning. The air of the sick room cannot be disinfected during its occupancy by the patient.

The practice of hanging up cloths saturated with carbolic acid, or placing saucers of Chlorinated Lime or proprietary disinfectants in the sick room, is not only annoying to the patient, but utterly useless if not injurious.

Solled bed and body clothing, including handkerchiefs or cloths used for the collection of discharges from the nose and mouth should be immediately placed in an antiseptic solution and allowed to soak for a period of three hours before being washed.

For this purpose use a solution made by dissolving one-quarter ($\frac{1}{4}$) of a pound chlorinated lime (bleaching powder) in eight gallons of water.

When, in the opinion of the attending physician, recovery has taken place, the patient should receive a cleansing bath and be provided with clean clothes.

After the recovery and removal of the patient the room, and everything it contains, should be disinfected with Formaldehyde gas. This gas may be liberated by the addition of a forty per cent. solution of formaldehyde to potassium permanganate. Six and one-half (6½) ounces by weight of commercial potassium permanganate crystals is required for each pint of the formaldehyde solution. This amount of chemicals is sufficient to disinfect a room ten feet square. In using Formaldehyde gas disinfection, the air of the room should be both warm and moist. The latter may be accomplished by sprinkling the floor or by suspending wet sheets around the room.

Place the crystals in a tin, agate or iron pail, the capacity of which is over eight times the quantity of the disinfectants to be used. This is necessary to prevent over-flow of the solution due to effervescence.

The pail containing the crystals should be placed at the centre of the room, in a tub or dish pan with a non-conductor such as a stove lid or bricks under the pail, as considerable heat without flame is given off on mixing the chemicals.

In the preparation of the room for such disinfection, it should be sealed with strips of gummed paper or surgeon's plaster, closing flues, ventilators, chimney places and all visible cracks and crevices about walls, doors and windows. Open up beds, stand mattresses on end, open closets, bureau drawers, trunks, etc., and spread their contents about the room.

Fabrics, especially carpets, bed and body clothing fully unfolded, should be suspended upon chairs, clothes-lines, bedsteads, etc., exposing all to the fumes of the gas.

When the room is properly sealed, pour the Formaldehyde solution upon the crystals from a wide mouthed vessel, that it may be done quickly, and make a hasty retreat.

Carefully seal the door of exit, including the key-hole and crevices about the door knob, and allow the room to remain closed at least six hours.

After disinfection soak bed and body clothing, etc., in a solution made by dissolving four (4) ounces of Chlorinated Lime (chloride of lime or bleaching powder) in eight (8) gallons of water.

After remaining in this solution for three hours they should be removed and boiled.

After the necessary cleaning the windows should be opened and the room thoroughly aired for two days before it is again occupied.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labelled and kept out of reach of children.

Those suffering from this disease will not be permitted to attend school prior to the issuance of a certificate by the attending physician, or in cases where no physician has been in attendance, a certificate from the Health Officer, which shall set forth that all precautions have been observed to prevent the spread of disease.

Other children in the households not contracting the disease at the end of twenty-one (21) days from the date of the first appearance of the disease in the house may return to school provided they have not been exposed to the sick for that length of time.

The use of the word school, wherever it occurs in the regulations of the Department shall mean public, private, parochial, Sunday or other school.

CHICKEN-POX.

While Varicella or Chicken-pox is recognized as a comparatively harmless disease, yet because of the fact that Small-pox is so frequently mistaken for it in its early stages, it is always advisable to summon a physician.

It is also advisable to confine the patient to one room, with windows screened, which room should be well lighted and ventilated. If possible a room with Southern exposure and remote from other occupied rooms in the house.

There should be neither carpets, curtains nor upholstered furniture in the room. In order to confine the infection to this room a sheet kept constantly moist with a solution of corrosive sublimate (Bichloride of Mercury 1-1000) should be hung over the door-way.

To prepare this solution, dissolve eight (8) Bichloride of Mercury tablets in one gallon of hot water.

The air of the sick room cannot be disinfected during its occupancy by the patient.

The practice of hanging up cloths saturated with carbolic acid or of placing saucers of Chlorinated Lime or proprietary disinfectants in the sick room is not only annoying to the patient, but utterly useless if not injurious.

An abundance of fresh air should be admitted to the room, but the patient should be protected from direct draughts.

All bed and body clothing, before being removed from the room should be placed in an antiseptic solution and allowed to soak for a period of three hours before being washed.

For this purpose use a solution made by dissolving one-quarter of a pound of Chlorinated Lime (bleaching powder) in eight gallons of water.

All eating utensils should be scalded before being used by others and the remnants of food burned.

None but those actually in attendance upon the patient should be permitted to enter the sick room or come in contact with the patient.

Upon recovery as manifested by a perfectly smooth skin and scalp, the patient should be given an antiseptic bath, as directed by the doctor, paying particular attention to the disinfection of the hair and scalp.

The antiseptic bath may be prepared by dissolving two Bichloride of Mercury tablets to the gallon of hot water (about 1-4000), this to be followed by a plain soap and water bath. After bathing, the patient should be wrapped in a clean sheet, handed from without, and step into a clean room to dress.

After the recovery, death or removal of the patient, the sick room and everything it contains, should be disinfected with formaldehyde gas. This gas may be liberated by the addition of a forty per cent. solution of formaldehyde to potassium permanganate. Six and one-half (6½) ounces by weight, of commercial potassium permanganate crystals is required for each pint of the formaldehyde solution. This amount of chemicals is sufficient to disinfect a room ten feet square. In using Formaldehyde gas for disinfection, the air of the room should be both warm and moist. The latter may be accomplished by sprinkling the floor or by suspending wet sheets around the room.

Place the crystals in a tin, agate or iron pail, the capacity of which is over eight times the quantity of disinfectants to be used. This is necessary to prevent over-flow of the solution due to effervescence.

The pail containing the crystals should be placed at the centre of the room, in a tub or dish pan with a non-conductor such as a stove lid or bricks under it, as considerable heat without flame is given off on mixing the chemicals.

In the preparation of the room for such disinfection, it should be sealed with strips of gummed paper or surgeon's plaster, closing flues, ventilators, chimney places and all visible cracks and crevices about walls, doors and windows. Open up beds, stand mattresses on end, open closets, bureau drawers, trunks, etc., and spread their contents about the room.

Fabrics, especially carpets, bed and body clothing fully unfolded, should be suspended upon chairs, clothes-lines, bedsteads, etc., exposing all to the fumes of the gas.

When the room is properly sealed, quickly pour the Formaldehyde solution upon the crystals from a wide mouthed vessel, in order that it may be done quickly and make a hasty retreat.

Carefully seal the door of exit, including the key-hole and crevices about the door knob, and allow the room to remain closed at least six hours.

After disinfection soak bed and body clothing, etc., in a solution made by dissolving four (4) ounces of Chlorinated Lime (Chloride of lime or bleaching powder) in eight (8) gallons of water.

After remaining in this solution for three hours they should be removed and boiled.

After the necessary cleaning the windows should be opened and the room thoroughly aired for two days before it is again occupied.

As disinfectant agents are poisonous when taken internally, such drugs and solutions should always be plainly labelled and kept out of the reach of children.

Those suffering from this disease will not be permitted to attend school prior to the issuance of a certificate by the attendant physician, or in cases where no physician has been in attendance, a certificate from the Health Officer which sets forth that all precautions have been observed to prevent the spread of the disease.

Other children in the households not contracting the disease at the end of twenty-one (21) days from the date of the first appearance of the disease in the house may return to school, provided they have not been exposed to the sick for that length of time.

The use of the word school, wherever it occurs in the regulations of the Department shall mean public, private, parochial, Sunday or other school.

MODEL PLACARDS.

Model placards having for their object the warning of the public against entering houses in which communicable diseases exist, have been prepared.

The appearance of a placard on a house does not necessarily show that the same is quarantined. In many instances it is simply a caution to the public not to visit the family unnecessarily. The placards have therefore been worded differently in the different diseases. They have been made sufficiently large to attract the attention of anyone purposing to enter the house, without being offensively conspicuous, being of a uniform length of ten inches. Those requiring somewhat strict quarantine are 6½ inches in depth in order to admit of a reference to the Act of June 18, 1898, forbidding the tearing down or destroying of a placard.

The remainder are $4\frac{1}{2}$ inches deep.
Of this first class there are three:

- No. 1, Smallpox.
- No. 2, Diphtheria.
- No. 3, Scarlet Fever.

That for Smallpox is quoted as a sample:

Commonwealth of Pennsylvania: Department of Health.

SMALLPOX.

Until this notice is legally removed all persons not occupants of these premises are forbidden to enter.

No person must leave this house or remove any article except by permission of an authorized agent of the Department of Health.

By Act of Assembly, approved June 18th, 1895, any violation of the above order or the removal, defacing, covering up, taking down or destroying of this Placard is punishable by a Fine not exceeding \$100, or by Imprisonment.

By order of the Department of Health,

Commissioner of Health.

That for Cerebro-spinal Meningitis is also of the larger dimension and is quoted separately, as being differently worded from any of the others owing to our ignorance of its mode of transmission:

Commonwealth of Pennsylvania: Department of Health.

SPOTTED FEVER.

(EPIDEMIC CEREBRO-SPINAL MENINGITIS.)

All persons are notified of the presence of this communicable disease and are warned of the danger of visiting or coming in contact with those sick with it.

Health Officer.

Commissioner of Health.

Several of the others required slight modification in accordance with the modes of communication of each.

These are:

Commonwealth of Pennsylvania: Department of Health.

TYPHOID FEVER.

All persons are notified of the presence of this disease and are warned of the danger of coming in contact with the infection.

Health Officer.

Commissioner of Health.

Commonwealth of Pennsylvania: Department of Health.

MEASLES.

All persons are notified of the presence of this disease and are warned of the danger of visiting or coming in contact with the occupants of this house.

Health Officer.

Commissioner of Health.

Commonwealth of Pennsylvania: Department of Health.

GERMAN MEASLES.

All persons are notified of the presence of this disease and on account of its being so contagious are warned against visiting or coming in contact with those sick with it.

Commonwealth of Pennsylvania: Department of Health.

WHOOPING-COUGH.

All persons are notified of the presence of this disease and are warned of the danger of visiting or coming in contact with those sick with it.

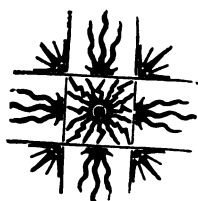
Commissioner of Health.

Health Officer.

No. 9, MUMPS: Is similar in its phraseology to No. 7 and No. 10, CHICKEN POX, is similar to No. 8, so that it is unnecessary to copy them in full.

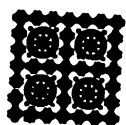
The number of these placards distributed up to the present time is about 200,000.

Besides placing them in the hands of all local boards as models, a sufficient number for emergencies have been placed with County Medical Inspectors, and wherever epidemics prevail extensively in rural regions the authorities are furnished with them.



The Bureau of Vital Statistics

Wilmer R. Batt, M. D., State Registrar.



THE BUREAU OF VITAL STATISTICS.

As this report represents the first successful attempt on the part of Pennsylvania to collect, collaborate and publish the vital statistics of the entire State, and as it follows fifty-five years of fruitless efforts to accomplish this result, a brief glance backward cannot be without some material profit in considering the present compilation.

Pennsylvania was one of the first States to officially recognize the value and importance of those vital statistics embraced in the subjects of births, deaths and marriages, and April 14, 1851, enacted a law upon the subject, entitled, "An act to provide for the registration of marriages, births and deaths," the preamble of which reads as follows

"WHEREAS, From the death of witnesses and from other causes it has been found difficult to prove the marriage, birth or death of persons, whereby the rights of many have been sacrificed and great wrongs have been done; and

"WHEREAS, Important truths deeply affecting the physical welfare of mankind are to be drawn from the number of marriages, births or deaths that during a term of years may be contracted, or may occur within the limits of this extensive Commonwealth; therefore, etc."

The fifteen sections contained in this Act embraced very many of the most essential features of a complete registration law.

Under its requirements the Register of Wills in each county received the returns of marriages, births and deaths from clergymen and physicians and in turn was required to transmit semi-annually certified copies of all returns to the Secretary of the Commonwealth at the State Capitol. Physicians and clergymen were allowed thirty days in which to make their returns to the county officer. This law, from the operation of which so much was confidently anticipated, was absolutely worthless for the reason that notwithstanding its many excellent requirements it failed to provide for immediate registration and did not supply the adequate means for its enforcement; returns were more or less voluntary and not compulsory.

The Register of Wills for Mifflin county, under date of January 19, 1855, in making his return for the year 1854, states as follows: "The Registration Law, so far as this county is concerned, is a complete failure."

After the lapse of thirty-five years we find that the Legislature on June 3, 1885, again recognized the value of vital statistics as a basis for effective sanitary work by the creation of a State Board of Health and Vital Statistics. Under the provisions of this Act, the Secretary of the State Board of Health was designated as Superintendent of Registration of Vital Statistics, the Board was given general supervision over such statistics and a Central Bureau was apparently established in the Department of the Secretary of Internal Affairs.

The statistics were, however, to be derived in the same manner and from the same source as provided for in the Act of 1851. As a matter of fact the Bureau of Vital Statistics was established by the Secretary of Internal Affairs and efforts were made to carry out the provisions of the law so far as the State was concerned. The utter lack of returns to the county officials, and consequently to the Central Bureau, prompted the Secretary of Internal Affairs, in writing of the Bureau of Vital Statistics, in his report of 1891, to declare that "this Bureau is practically extinct," and subsequent to that date it ceased to appear in the reports of that Department.

On June 6, 1893, the Legislature made a further attempt to collect certain vital statistics for the entire State through an act entitled, "An act to provide for the registration of births and deaths in the several counties of the Commonwealth." Although by its title this act referred to registration, it in reality simply provided for an enumeration of such facts relating to births and deaths as the assessors could procure when making their semi-annual assessment. For all practical purposes this law was even more of a failure than the Act of 1851, as it lacked every essential feature of a successful registration law.

The Governor of Pennsylvania in his message to the Legislature in 1897, referred to it as follows:

"The need of a suitable system of registration of vital statistics is also being constantly brought to the attention of the health authorities. In an enlightened community there live but few people of mature age whose birth, marriage or death does not at some time become a matter for the cognizance and consideration of legal authorities. The attainment of majority with its rights and duties, the fact and date of wedlock, the inheritance or conveyance of property, parentage and nationality, place, date and cause of death and interment, and many other questions of a sociological, economic, sanitary or even historical character often assume much importance with reference to many of our citizens. In the absence of a State system of registration many of the citizens are deprived of their legal rights or are enabled to deprive their fellows of their legal rights. So far as the registration of deaths is required by the Act of June 6, 1893, it is almost a dead letter. The deeds of the murderer and abortionist, or the suicide can be easily concealed from human view until decomposition has obliterated all evidence of the crime. To obviate these dangers effectually it seems to be necessary to require the issuing of a burial permit by some constituted authority and to make this issue contingent upon the presentation of satisfactory information respecting the cause of death. This official act ought to be made the first step in the State registration of deaths. Pennsylvania is the only one of the North Atlantic States without such a system and she is behind almost every other State in the Union in this respect."

During the period covered by the Legislative enactments above referred to, vital statistics had become a subject of serious consideration by the National and other State governments. Publications upon the subject first appeared in the reports of the United States Census for the year 1850, and regularly thereafter in the subsequent decennial census reports.

The registration area included in the United States Census Reports for 1900, comprised ten States and the District of Columbia, in which the collection of vital statistics were considered sufficiently accurate to be worthy of recognition. These States were as follows: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Indiana and Michigan.

The Congress of the United States in 1902, established a permanent Census Bureau and created thereunder a division of vital statistics whereby reports for the registration area above mentioned, following those of the census of 1900, should be annual instead of decennial, and under date of February 11, 1903, by resolution, called upon the non-registration States to enact such legislation as would provide for a complete and uniform system of registration of vital statistics throughout the entire United States.

We, therefore, find that during the period of fifty years covered by the entire series of decennial reports of the United States Census Office, and also the five years covered by the annual reports from 1901 to 1905 inclusive, Pennsylvania, except by Federal enumeration, has had no place or mention.

The Law under which the present collection of births and deaths in this State has been performed was enacted May 1, 1905, and was placed in actual operation January 1, 1906. The measure of its success so far as the registration of deaths is concerned may be gauged from the fact that the Director of the Census in a communication under date of July 13, 1906, as a result of a personal investigation made by the Chief Statistician of the Division of the Vital Statistics, formally included Pennsylvania in the registration area of the United States Census Office, this inclusion to embrace the statistics for the entire year 1906. This action should be a source of some pride and gratification to the people of Pennsylvania inasmuch as it gave to the State within the first year of the operation of the recent law an immediate National recognition of its vital statistics.

It is not for sanitary or statistical purposes alone, however, that the present law has proven so effective, as the value to the citizens of the State is demonstrated by the fact that there are daily requests for certified copies of records which are of the greatest importance in preserving the legal and personal rights of individuals.

The collection of these statistics has been accomplished through the medium of 872 Local Registrars, each with a Deputy commissioned to act in their absence, illness or disability. In addition to the Local Registrars, 214 sub-registrars have been appointed in sub-divisions of certain registration districts in order to better serve the convenience of the people.

In consideration of the fact that the local, deputy and sub-registrars have been called upon to discharge duties with which very many of them were entirely unfamiliar and that they were required to exercise extreme vigilance in the enforcement of the law in their respective districts, the returns of the first year bear witness to the excellent manner in which their work taken as a whole has been performed. Physicians, undertakers and others have, as a rule, also cheerfully complied with the provisions of the law and materially helped the accuracy of registration.

The Registration Act (May 1, 1905), referred only to the collection of births and deaths. The registration of marriages was secured through the medium of county court records and of communicable diseases by regulation of the Department of Health. A total of 446,262 returns were received and compiled during the year.

The records of all births, deaths and marriages are completely indexed and permanently preserved so that they will be available for immediate reference at any time in the future.

The report is presented under five separate headings, as follows: 1. Population. 2. Deaths. 3. Births. 4. Communicable Diseases. 5. Marriages.

POPULATION.

A proper interpretation of the facts concerning births, deaths, diseases and marriages occurring in a large population distributed over an extensive territory and under such a great diversity of conditions as exist in Pennsylvania can only be secured through a thorough knowledge of the elements of which that population is composed.

Certain periods of life, sex, nativity, occupation and environment each exert such specific influences upon vital phenomena that they must receive particular consideration in order that the causes of abnormal conditions may be ascertained, and remedies devised for their correction, also that conclusions by comparison of the statistics of different areas may not become misleading.

The following statistics relating to population represent estimates for the year 1906 on the basis of a six years' increment since the United States census of 1900 at the same average annual increase as was maintained between the census years 1890 and 1900.

In the absence of a State census intermediate to the regular decennial periods established by the National Government some method of estimating population is absolutely necessary if death and birth rates for intercensal years are to have a timely and reputable significance. This method may be open to some objections when applied to certain municipal sub-divisions of the State where some unusual local conditions have contributed to an abnormal increase of population, but in actual practice it has been found to furnish the most satisfactory results where actual enumeration has not been provided for.

In the preparation of the population tables an effort has been made to present the facts relative to the distribution according to sex, nativity and age periods so that they may be readily compared with the deaths from various causes for the same groupings.

The estimates of foreign population both as to aggregate, sex, age, distribution and locality, very probably presents the greatest departure from the actual facts, as immigration which is very apt to be spasmodic and localized, operates to disturb the rates of natural increase or decrease.

The municipal sub-divisions of the State include 31 cities, 870 boroughs, 67 counties and 1,546 townships.

For the purpose of comparison between places having approximately equal populations, the cities and boroughs have been divided into eight urban groups, while the population in townships has been classed as rural and occupies the ninth group. (Table 1.)

The classification between urban and rural population, based upon the fact of municipal incorporation, is a somewhat arbitrary one when it is considered that very many boroughs have populations less than 500, while on the other hand quite a few townships have unincorporated villages of over 2,000 population.

In order that those counties having a large population with few incorporated municipalities may not suffer unjustly by comparison of their rural death rates with counties not similarly constituted the density per square mile of rural population has been shown in Table 2. The populations for individual townships have not been considered in these tables as both the deaths and births occurring therein have been grouped as rural cases in the several counties. As the city of Philadelphia is coextensive in boundary with the county, the entire population in this county has been classed as urban, leaving but 66 counties with rural populations.

The estimated State population for 1906 is 6,928,575, giving a density of 155 per square mile of land area. In point of total population it ranks second in all the States, being exceeded only by New York. In density it ranks sixth, being exceeded by Rhode Island, 560; Massachusetts, 379; New Jersey, 292; Connecticut, 209, and New York, 173.

Aggregate population.	6,928,575
Total area in square miles,	46,017
Land area in square miles,	44,832
Density of population per square mile of land area,	155

Of the total population 64.6 per cent. is urban and 35.4 per cent. rural, based upon the division before mentioned. A comparison of these urban and rural percentages with the urban and rural rates of other States is not made for the reason that the method of municipal organization varies in the several States, and, therefore, the basis for division is not constant.

TABLE 1.

Distribution of population according to certain groups with the percentage in each group to the total population.

Urban Population.		Number.	Per Cent. to Total Population.
Group 1.	In municipalities of 500,000 and over,	1,441,735	20.8
Group 2.	In municipalities between 100,000 and 500,000,	639,014	9.2
Group 3.	In municipalities between 50,000 and 100,000,	268,990	3.8
Group 4.	In municipalities between 25,000 and 50,000,	395,391	5.7
Group 5.	In municipalities between 10,000 and 25,000,	474,650	6.8
Group 6.	In municipalities between 5,000 and 10,000,	410,624	5.9
Group 7.	In municipalities between 2,500 and 5,000,	347,514	5.3
Group 8.	In municipalities less than 2,500,	512,945	7.4
Group 9.	Rural population in townships,	2,436,802	35.4

TABLE 2.

Density of rural population per square mile for each county.

County.	Density.	County.	Density.
Adams,	48	Juniata,	33
Allegheny,	210	Lackawanna,	60
Armstrong,	61	Lancaster,	90
Beaver,	52	Lawrence,	69
Bedford,	31	Lebanon,	104
Blair,	59	Lehigh,	120
Bradford,	33	Luzerne,	105
Berks,	80	Lycoming,	27
Bucks,	76	McKean,	23
Butler,	45	Mercer,	46
Cambria,	80	Mifflin,	50
Cameron,	10	Monroe,	24
Carbon,	51	Montgomery,	162
Centre,	25	Montour,	52
Chester,	75	Northampton,	97
Clarion,	45	Northumberland,	85
Clearfield,	48	Perry,	33
Clinton,	17	Pike,	12
Columbia,	50	Potter,	23
Crawford,	35	Schuylkill,	80
Cumberland,	50	Snyder,	49
Dauphin,	63	Somerset,	40
Delaware,	187	Sullivan,	24
Elk,	30	Susquehanna,	27
Erle,	38	Tioga,	31
Fayette,	115	Union,	37
Forest,	27	Venango,	36
Franklin,	51	Warren,	27
Fulton,	21	Washington,	65
Greene,	39	Wayne,	32
Huntingdon,	24	Westmoreland,	113
Indiana,	36	Wyoming,	35
Jefferson,	75	York,	65

Of the entire population 50.8 per cent. are males and 49.2 per cent. females; 94.4 per cent. are native and 15.6 per cent. are foreign born. As compared with the distribution by sex for the United States, this population shows a deficiency of .3 per cent. of males and a corresponding excess for females. Of the native population 49.9 per cent. are males and 50.1 per cent. females, and of the foreign population 55.6 per cent. are males and 44.3 per cent. females. The foreign population exceeds by 1.9 the per cent. of foreign population for the



The distribution of population according to sex, race, and urban and rural status.

[REDACTED]

y, color, urban, rural and certain urban groups.

entire United States. Some marked changes are taking place in the character of the foreign born population. In 1890, 79 per cent. of this entire population was composed of immigrants from Great Britain and Germany. In 1900, this element had fallen to 60 per cent. and in 1906, to 51 per cent. In 1890, Austro-Hungary, Russia, Poland and Italy combined contributed 14 per cent. of the total foreign population; in 1900 this population had increased to 31 per cent. and in 1906 to 40 per cent.

The distribution by age periods and sex (Table 4) shows that under five years of age the males exceed the females by four-tenths of one per cent. and an excess of males is observed to continue until the age period 15 to 19, when the females are slightly in excess. The change at this particular time is due in a great measure to the increased death rate resulting from the hazards involved in the entrance of males upon gainful occupations. In the age periods 25 to 29 the males are in excess, owing to the mortality of females incident to childbirth, and the influx of the foreign born, the great majority of whom are adult males. Between 25 and 50 the disparity between the sexes is markedly in favor of males. Subsequent to the age of 60 the activities of the male have resulted in an increased mortality, and following this age and for all later periods females are in the majority.

In the distribution of the native population by five year age periods the same ascendancy of males is noticed until the age 15. Subsequent to this period they are again in the majority between 30 and 34 and between 40 and 50. In the foreign born population (Table 7) females are in the majority in the age periods 5 to 9 and subsequent to 65.

In Table 8 it will be noted that Pennsylvania is deficient in population at all ages under 25 as compared with the distribution of the population throughout the entire United States, and between 25 and 70 there is an excess. This is due very largely to the foreign born population which, as was before noted, is largely adult. There is, however, a deficiency and excess between the years noted even for the native population. (Table 9.)

In Tables 10 and 11 the distribution of population according to sex and nativity is given for incorporated municipalities exceeding 10,000 inhabitants, also the percentage of each to the total population, and the excess or deficiency noted in comparison with the distribution of the aggregate population for the State. The significant of these comparisons will be apparent in examining the death rates for these municipalities. Of the total population, 6,742,181 are white and 186,394 are black.

TABLE 3.

Foreign born population classified according to the country of birth.

Africa,	154	Greece,	666
Australia,	724	Holland,	611
Austria,	95,035	Hungary,	62,764
Belgium,	5,406	Ireland,	184,325
Bohemia,	4,095	Italy,	91,751
Canada,	16,184	Norway,	929
Central America,	277	Poland,	112,394
China,	2,188	Russia,	70,463
West Indies,	1,216	Scotland,	29,459
Denmark,	2,817	Sweden,	26,761
England,	109,189	Switzerland,	7,014
France,	9,233	Wales,	33,886
Germany,	202,518	Other countries,	10,799

TABLE 4.

Aggregate population as distributed by five year age periods according to sex with percentage to total population.

Age Periods.	Total.	Per Cent.	Males.	Per Cent.	Females.	Per Cent.
All ages,	6,928,575	100.00	3,519,717	50.8	3,408,858	49.2
Under 5 years,	802,639	11.59	403,861	5.83	398,778	5.78
5 to 9 years,	755,353	10.90	379,906	5.45	375,445	5.43
10 to 14 years,	657,653	9.59	345,630	4.99	312,023	4.54
15 to 19 years,	659,522	9.53	329,108	4.75	330,414	4.77
20 to 24 years,	664,185	9.59	339,353	4.75	324,832	4.84
25 to 29 years,	633,455	9.14	324,977	4.69	308,478	4.45
30 to 34 years,	551,728	7.96	289,976	4.18	261,752	3.78
35 to 39 years,	487,317	7.03	255,633	3.69	231,684	3.34
40 to 44 years,	398,597	5.75	215,708	3.11	182,889	2.64
45 to 49 years,	331,419	4.78	171,444	2.48	159,975	2.30
50 to 54 years,	277,365	4.00	141,697	2.04	135,668	1.96
55 to 59 years,	210,973	3.05	106,331	1.53	104,642	1.52
60 to 64 years,	169,177	2.44	83,112	1.20	86,065	1.24
65 to 69 years,	122,264	1.76	59,073	0.85	63,190	0.91
70 to 74 years,	82,799	1.20	39,241	0.57	43,558	0.63
75 to 79 years,	48,190	0.70	22,718	0.33	25,472	0.37
80 to 84 years,	22,728	0.33	10,327	0.15	12,401	0.18
85 and over,	9,773	0.14	3,354	0.06	6,419	0.09
Unknown ages,	13,136	0.19	8,467	0.12	4,671	0.07

TABLE 5.

Aggregate population as distributed by five year age periods according to nativity with percentage in each age period to total population.

Age Periods.	Total.	Per Cent.	Native.	Per Cent.	Foreign.	Per Cent.
All ages,	6,928,575	100.00	5,847,717	84.4	1,080,858	15.6
Under 5 years,	802,639	11.59	798,922	11.54	3,717	0.05
5 to 9 years,	755,353	10.90	746,431	10.77	8,922	0.12
10 to 14 years,	657,653	9.59	657,596	9.51	57,057	0.42
15 to 19 years,	659,522	9.53	592,557	8.56	67,165	0.96
20 to 24 years,	664,185	9.59	555,756	8.08	108,429	1.51
25 to 29 years,	633,455	9.14	501,932	7.20	131,523	1.94
30 to 34 years,	551,728	7.96	408,669	5.87	143,059	2.09
35 to 39 years,	487,317	7.03	341,348	4.92	145,969	2.11
40 to 44 years,	398,597	5.75	299,791	4.32	98,806	1.43
45 to 49 years,	331,419	4.78	252,986	3.63	78,433	1.15
50 to 54 years,	277,365	4.00	201,592	2.90	75,773	1.10
55 to 59 years,	210,973	3.05	152,171	2.20	58,802	0.85
60 to 64 years,	169,177	2.44	121,745	1.75	47,432	0.69
65 to 69 years,	122,264	1.76	86,344	1.24	35,920	0.52
70 to 74 years,	82,799	1.20	57,891	0.83	24,908	0.37
75 to 79 years,	48,190	0.70	34,339	0.50	13,251	0.20
80 to 84 years,	22,728	0.33	17,099	0.24	5,629	0.09
85 and over,	9,773	0.14	7,601	0.11	2,172	0.03
Unknown ages,	13,136	0.19	11,247	0.16	1,891	0.03

TABLE 6.

Native population as distributed by five year age periods according to sex with per cent. in each age period to the total native population.

Age Periods.	Native.	Per Cent.	Male.	Per Cent.	Female.	Per Cent.
All ages,	5,847,717	100.00	2,918,010	49.9	2,929,707	50.1
Under 5 years,	798,922	13.66	401,392	6.87	397,530	6.79
5 to 9 years,	746,431	12.76	375,397	6.43	371,034	6.33
10 to 14 years,	667,596	11.26	331,546	5.67	336,050	5.69
15 to 19 years,	592,667	10.15	296,126	5.06	297,531	5.10
20 to 24 years,	558,756	9.57	273,319	4.68	285,437	4.89
25 to 29 years,	501,932	8.57	249,535	4.27	252,397	4.30
30 to 34 years,	406,669	6.96	205,189	3.49	201,480	3.47
35 to 39 years,	341,348	5.84	168,082	2.87	173,266	2.97
40 to 44 years,	299,791	5.13	154,983	2.65	144,808	2.48
45 to 49 years,	252,986	4.33	127,326	2.17	125,660	2.15
50 to 54 years,	201,592	3.43	99,906	1.71	101,687	1.72
55 to 59 years,	153,171	2.60	74,311	1.27	77,860	1.33
60 to 64 years,	121,745	2.08	58,975	1.01	62,770	1.07
65 to 69 years,	86,344	1.47	41,970	0.72	44,374	0.75
70 to 74 years,	57,891	0.97	27,027	0.46	30,864	0.51
75 to 79 years,	34,930	0.58	15,796	0.27	19,134	0.31
80 to 84 years,	17,099	0.28	7,418	0.12	9,681	0.16
85 and over,	7,601	0.13	2,906	0.05	4,695	0.08
Unknown ages,	11,247	0.19	7,667	0.13	3,580	0.06

TABLE 7.

Foreign population as distributed by five year age periods according to sex with per cent. in each age period to total foreign population.

Age Periods.	Foreign.	Per Cent.	Male.	Per Cent.	Female.	Per Cent.
All ages,	1,080,858	100.00	601,707	55.6	479,151	44.3
Under 5 years,	3,717	0.25	2,069	0.14	1,648	0.11
5 to 9 years,	8,922	0.79	4,311	0.38	4,611	0.41
10 to 14 years,	30,067	2.61	16,141	1.31	14,916	1.30
15 to 19 years,	67,166	6.11	34,722	3.16	32,443	2.96
20 to 24 years,	106,429	9.72	55,989	5.16	49,450	4.56
25 to 29 years,	121,523	12.20	75,192	6.96	56,331	5.22
30 to 34 years,	145,069	13.41	95,387	7.90	59,672	5.51
35 to 39 years,	145,968	13.50	88,101	8.16	57,868	5.34
40 to 44 years,	98,906	9.15	60,540	5.62	38,366	3.53
45 to 49 years,	78,483	7.30	43,908	4.08	34,575	3.22
50 to 54 years,	75,773	7.06	41,092	3.83	34,681	3.23
55 to 59 years,	58,802	5.47	31,520	2.93	27,282	2.54
60 to 64 years,	47,432	4.42	23,937	2.23	23,495	2.19
65 to 69 years,	36,920	3.35	16,966	1.58	19,954	1.77
70 to 74 years,	24,908	2.40	12,014	1.14	12,894	1.26
75 to 79 years,	13,251	1.33	6,422	0.64	6,829	0.68
80 to 84 years,	5,629	0.55	2,808	0.27	2,821	0.28
85 and over,	2,172	0.20	948	0.09	1,224	0.11
Unknown ages,	1,891	0.18	800	0.07	1,091	0.10

TABLE 8.

Distribution of aggregate population of Pennsylvania according to percentage in each five year age period as compared with the distribution of the aggregate population of the United States for the same periods.

Age Periods.	Pennsyl- vania.	Excess or Deficit.	United States.
Under 5 years,	11.6	-0.5	12.1
5 to 9 years,	10.9	-0.8	11.7
10 to 14 years,	9.9	-0.8	10.7
15 to 19 years,	9.5	-0.4	9.9
20 to 24 years,	9.7	0.0	9.7
25 to 29 years,	9.1	+0.5	8.6
30 to 34 years,	8.0	+0.7	7.3
35 to 39 years,	7.0	+0.5	6.5
40 to 44 years,	5.7	+0.1	5.6
45 to 49 years,	4.8	+0.3	4.5
50 to 54 years,	4.0	+0.1	3.9
55 to 59 years,	3.0	+0.1	2.9
60 to 64 years,	2.5	+0.1	2.4
65 to 69 years,	1.8	+0.1	1.7
70 to 74 years,	1.2	.....	1.2
75 to 79 years,	0.7	.....	0.7
80 to 84 years,	0.4	.....	0.4
85 years and over,	0.2	.....	0.2

TABLE 9.

Distribution of the native born population of Pennsylvania according to the percentage in each five year age period as compared with the distribution of the native born population of the United States for the same period.

Age Periods.	Pennsyl- vania.	Excess or Deficit.	United States.
Under 5 years,	13.7	-0.2	13.9
5 to 9 years,	12.8	-0.5	13.3
10 to 14 years,	11.3	-0.6	11.9
15 to 19 years,	10.2	-0.5	10.7
20 to 24 years,	9.6	-0.2	9.8
25 to 29 years,	8.6	+0.3	8.3
30 to 34 years,	7.0	+0.3	6.7
35 to 39 years,	5.9	+0.2	5.7
40 to 44 years,	5.1	+0.2	5.0
45 to 49 years,	4.3	+0.3	4.0
50 to 54 years,	3.4	+0.2	3.2
55 to 59 years,	2.6	+0.2	2.4
60 to 64 years,	2.0	+0.2	1.9
65 to 69 years,	1.5	+0.1	1.4
70 to 74 years,	1.0	.....	1.0
75 to 79 years,	0.6	.....	0.6
80 to 84 years,	0.2	.....	0.2
85 years and over,	0.2	.....	0.2

TABLE 10.

Distribution of population in cities and boroughs over 10,000 inhabitants by sex and nativity.

City or Borough.	Males.	Females.	Native.	Foreign.
Allegheny,	74,507	70,733	111,399	33,841
Allentown,	20,215	21,380	38,059	3,536
Altoona,	23,807	24,103	43,837	4,073
Beaver Falls,	5,184	5,062	8,657	1,589
Braddock,	10,636	8,585	12,934	6,284
Bradford,	8,156	8,421	14,140	2,437
Butler,	5,820	8,305	10,094	2,031
Carbondale,	7,353	7,623	12,138	2,829
Carlisle,	5,148	5,578	10,533	193
Chester,	18,981	19,041	32,339	5,963
Columbia,	6,631	6,792	12,577	846
DuBois,	5,781	5,532	9,220	2,093
Dunmore,	7,588	7,557	11,404	3,741
Duquesne,	6,887	4,747	6,190	4,444
Easton,	13,903	14,414	25,910	2,407
Erie,	30,176	29,817	46,374	13,619
Harrisburg,	27,031	28,704	52,640	2,786
Hazleton,	7,744	8,027	12,743	3,028
Homestead,	8,811	6,675	10,918	1,568
Johnstown,	23,138	20,112	34,427	8,823
Lancaster,	20,372	23,066	38,790	3,648
Lebanon,	9,353	10,061	17,619	1,785
McKeesport,	22,804	20,634	31,579	11,889
Mahanoy City,	7,619	7,017	10,478	4,353
Meadville,	5,487	6,332	10,722	1,047
Mount Carmel,	8,875	7,282	11,521	4,816
Nanticoke,	7,013	6,345	7,788	5,570
New Castle,	19,197	17,650	30,019	6,828
Norristown,	11,174	12,360	20,494	3,233
Oil City,	7,346	7,316	12,448	2,214
Philadelphia,	708,460	735,286	1,118,785	322,950
Pittsburg,	194,187	180,915	276,060	59,022
Pittston,	7,009	6,897	10,026	3,780
Plymouth,	8,410	7,725	10,530	5,715
Pottstown,	6,901	7,041	13,119	823
Pottsville,	7,932	8,732	14,931	1,732
Reading,	45,114	46,027	84,214	6,927
Scranton,	59,583	59,109	84,983	33,709
Shamokin,	10,343	10,139	18,451	2,051
Shenandoah,	18,166	9,773	13,306	9,513
South Bethlehem,	7,938	7,037	11,239	3,766
Steelton,	8,301	5,620	11,268	2,633
Sunbury,	5,265	5,703	10,748	219
Warren,	5,281	5,366	8,624	2,023
West Chester,	4,722	5,702	9,809	615
Wilkes-Barre,	29,278	30,843	45,932	14,189
Wilkinsburg,	8,280	8,689	14,982	1,966
Williamsport,	14,817	14,918	26,524	3,211
York,	19,624	19,544	37,741	1,427

TABLE 11.

Distribution of population in cities and boroughs over 10,000 inhabitants by percentage of males and females and native and foreign, to total population.

City or Borough.	Males.	Females.	Native.	Foreign.
Allegheny,	51.3	49.7	76.7	23.3
Allentown,	48.6	51.4	91.5	8.5
Altoona,	49.9	51.1	91.5	8.5
Beaver Falls,	50.6	49.4	84.5	15.5
Braddock,	55.9	44.1	57.3	32.7
Bradford,	49.2	50.8	85.3	14.7
Butler,	48.0	52.0	91.5	8.5
Carbondale,	49.1	50.9	81.1	18.9
Carlisle,	48.0	52.0	96.2	1.8
Chester,	49.9	50.1	85.1	14.9
Columbia,	49.5	50.5	93.7	6.3
DuBois,	51.1	48.9	81.5	18.5
Dunmore,	50.1	49.9	75.3	24.7
Duquesne,	59.2	40.8	61.8	38.2
Easton,	49.1	50.9	91.5	8.5

TABLE 11.—Continued.

City or Borough.	Males.	Females.	Native.	Foreign.
Erie,	50.3	49.7	77.3	22.7
Harrisburg,	48.5	51.5	95.0	5.0
Hazleton,	49.1	50.9	80.3	19.2
Homestead,	56.9	43.1	70.5	29.5
Johnstown,	53.5	46.5	79.6	20.4
Lancaster,	46.9	53.1	91.6	8.4
Lebanon,	48.2	51.8	90.8	9.2
McKeesport,	52.5	47.5	72.7	27.3
Mahanoy City,	52.7	47.3	71.3	28.7
Meadville,	48.2	51.8	91.1	8.9
Mount Carmel,	55.0	45.0	71.4	28.6
Nanticoke,	52.5	47.5	58.3	41.7
New Castle,	53.1	47.9	81.2	18.8
Norristown,	46.8	53.2	86.3	13.7
Oil City,	50.1	49.9	94.9	15.1
Philadelphia,	49.0	51.0	77.6	22.4
Pittsburg,	51.5	48.5	73.6	26.4
Pittston,	50.4	49.6	72.1	27.9
Plymouth,	51.8	48.2	84.8	15.2
Pottstown,	49.5	50.5	94.1	5.9
Pottsville,	47.6	52.4	89.6	10.4
Reading,	49.5	50.5	92.4	7.6
Scranton,	50.2	49.8	71.8	28.2
Shamokin,	50.5	49.5	85.2	14.8
Shenandoah,	56.5	43.5	58.2	41.8
South Bethlehem,	53.1	46.9	74.9	25.1
Steelton,	59.6	40.4	81.0	19.0
Sunbury,	48.0	52.0	98.0	2.0
Warren,	48.7	51.3	81.0	19.0
West Chester,	45.3	54.7	94.1	5.9
Wilkes-Barre,	48.7	51.3	76.4	23.6
Wilkinsburg,	49.0	51.0	88.4	11.6
Williamsport,	50.0	50.0	89.3	10.7
York,	50.0	50.0	96.1	3.9

TABLE 12.

Excess or deficit of population in cities and boroughs over 10,000 inhabitants, according to sex and nativity as compared with the aggregate population of Pennsylvania.

City or Borough.	Males.	Females.	Native.	Foreign.
Allegheny,	+0.5	-0.5	-7.7	+7.7
Allentown,	-2.3	+2.3	+7.1	-7.1
Altoona,	-0.9	+0.9	+7.1	-7.1
Beaver Falls,	-0.2	+0.2	+0.1	-0.1
Braddock,	+5.1	-5.1	-17.1	+17.1
Bradford,	-1.6	+1.6	+0.9	-0.9
Butler,	-2.8	+2.8	+7.1	-7.1
Butler,	-1.7	+1.7	-3.3	+3.3
Carbondale,	-2.8	+2.8	+13.8	-13.8
Carlisle,	-0.9	+0.9	+0.7	-0.7
Chester,	-1.3	+1.3	+9.3	-9.3
Columbia,	+0.3	-0.3	-2.9	+2.9
DuBois,	-0.7	+0.7	-9.1	+9.1
Dunmore,	+9.6	-9.6	-22.6	+22.6
Duquesne,	-1.7	+1.7	+7.1	-7.1
Easton,	-0.5	+0.5	-7.1	+7.1
Erie,	-2.3	+2.3	+10.6	-10.6
Harrisburg,	-1.7	+1.7	-3.6	+3.6
Hazleton,	-6.1	+6.1	-13.9	+13.9
Homestead,	+2.7	-2.7	-4.8	+4.8
Johnstown,	-3.9	+3.9	+7.2	-7.2
Lancaster,	-2.6	+2.6	+6.4	-6.4
Lebanon,	+1.7	-1.7	-11.7	+11.7
McKeesport,	+1.9	-1.9	-13.1	+13.1
Mahanoy City,	-4.6	+4.6	+6.7	-6.7
Meadville,	+4.2	-4.2	-13.0	+13.0
Mount Carmel,	+1.7	-1.7	-26.1	+26.1
Nanticoke,	+1.3	-1.3	-3.2	+3.2
New Castle,	-4.0	+4.0	+1.9	-1.9
Norristown,	-0.7	+0.7	+0.5	-0.5
Oil City,	-1.8	+1.8	-6.8	+6.8
Philadelphia,	+0.7	-0.7	-10.8	+10.8
Pittsburg,				

TABLE 12.—Continued.

City or Borough.	Males.	Females.	Native.	Foreign.
Pittston,	-0.4	+0.4	-12.3	+12.3
Plymouth,	+1.0	-1.0	-19.6	+19.6
Pottstown,	-1.3	+1.3	+9.7	-9.7
Pottsville,	-3.2	+3.2	+5.2	-5.2
Reading,	-1.3	+1.3	+8.0	-8.0
Scranton,	-0.6	+0.6	-12.8	+12.8
Shamokin,	-0.2	+0.2	+0.8	-0.8
Shenandoah,	+5.7	-5.7	-26.2	+26.2
South Bethlehem,	+2.9	-2.9	-9.5	+9.5
Steelton,	+8.8	-8.8	-3.4	+3.4
Sunbury,	-2.8	+2.8	+13.6	-13.6
Warren,	-2.1	+2.1	-3.4	+3.4
West Chester,	-5.3	+5.3	+9.7	-9.7
Wilkes-Barre,	-2.1	+3.1	-8.0	+8.0
Wilkinsburg,	-1.8	+1.8	+4.0	-4.0
Williamsport,	-0.8	+0.9	+4.8	-4.8
York,	-0.8	+0.8	+11.7	-11.7

TABLE 13.

Population of incorporated municipalities exceeding 2,500 inhabitants.

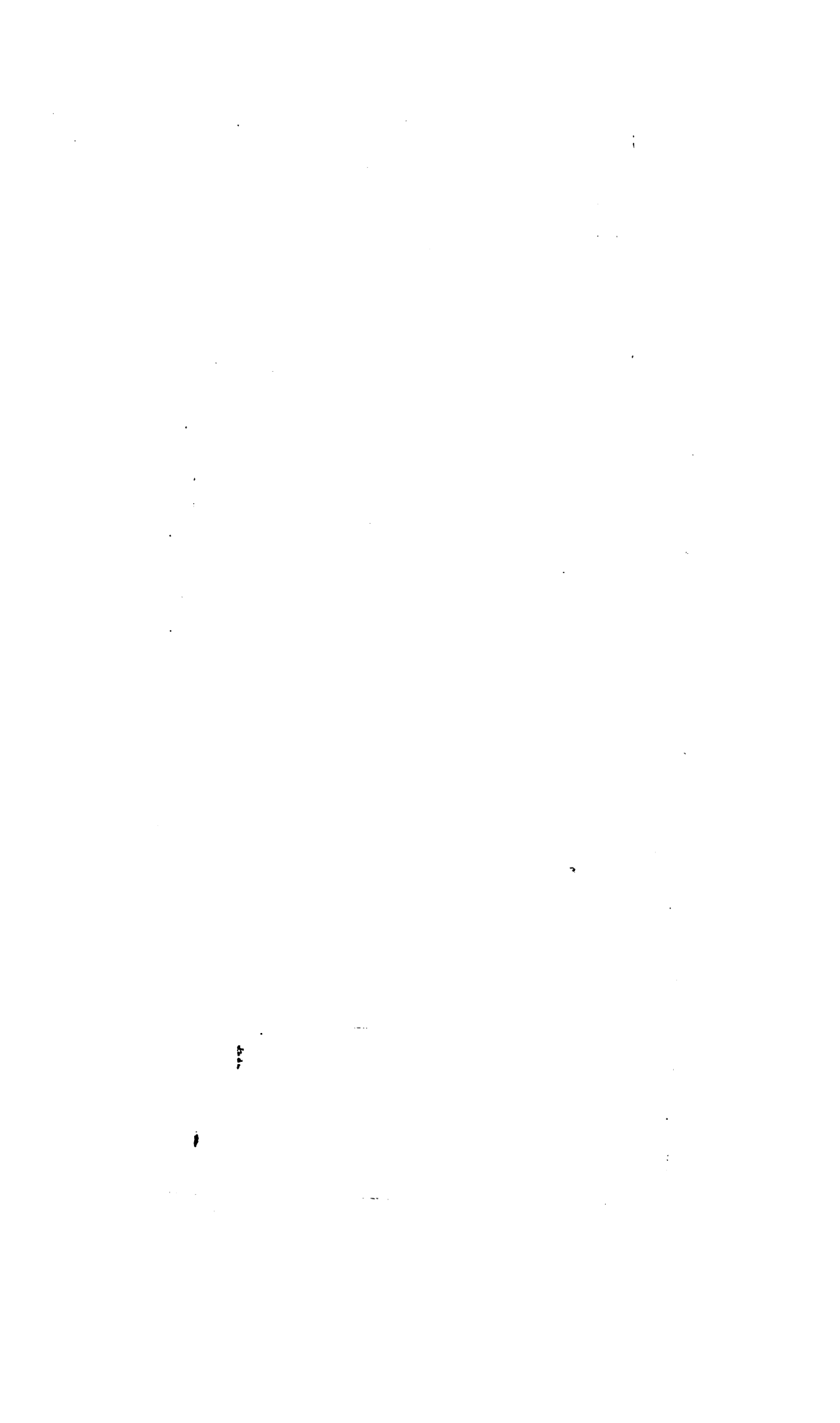
Municipality.	Popula- tion.	Municipality.	Popula- tion.
Allegheny,	145,240	Connellsville,	8,079
Allentown,	41,595	Conshohocken,	5,937
Altoona,	47,910	Coraopolis,	3,511
Apollo,	3,385	Corry,	5,369
Archbald,	6,214	Coudersport,	4,229
Ashland,	6,438	Crafton,	2,627
Ashley,	4,558	Danville,	8,066
Athens,	4,034	Darby,	3,703
Austin,	2,663	Derry,	2,574
Avalon,	2,916	Dickson,	6,051
Avoca,	3,761	Dorranceton,	3,186
Bangor,	5,064	Doylestown,	3,343
Beaver,	2,826	DuBois,	11,313
Beaver Falls,	10,246	Dunmore,	15,145
Bellevue,	4,378	Duquesne,	11,634
Berwick,	4,615	East Conemaugh,	2,785
Bethlehem,	4,645	East Mauch Chunk,	3,870
Blairsville,	7,612	Easton,	28,317
Blakely,	3,542	East Pittsburg,	2,883
Bloomsburg,	4,793	East Stroudsburg,	3,145
Bradock,	7,091	Edwardsville,	6,294
Bradford,	19,218	Elliott,	3,345
Bridgeport,	16,577	Emporium,	2,653
Bristol,	3,365	Erie,	59,993
Butler,	7,435	Esplen,	2,664
California,	12,125	Etna,	6,354
Canonsburg,	2,920	Exeter,	2,643
Carbondale,	3,075	Ford City,	3,839
Carlisle,	14,976	Forest City,	5,455
Carnegie,	10,832	Frackville,	2,638
Catasauqua,	7,330	Franklin,	7,975
Chambersburg,	4,118	Freeland,	7,368
Charleroi,	9,658	Galeton,	2,580
Chester,	5,930	Gallitzin,	2,979
Clayville,	38,002	Gettysburg,	3,659
Clearfield,	2,952	Gilberton,	4,784
Clifton Heights,	6,781	Girardville,	3,715
Coatesville,	2,636	Greensburg,	7,892
Columbia,	6,946	Greensville,	5,498
	13,423	Hanover,	5,302

TABLE 13.—Continued.

Municipality.	Popula- tion.	Municipality.	Popula- tion.
Harrisburg,	55,735	Pitcairn,	2,601
Hazleton,	15,771	Pittsburg,	375,082
Holidaysburg,	3,012	Pittston,	13,906
Homestead,	15,486	Plymouth,	16,235
Honesdale,	2,893	Pottstown,	13,942
Huntingdon,	6,247	Pottsville,	16,661
Indiana,	5,449	Punxsutawney,	5,325
Jeanette,	7,406	Quakertown,	3,521
Jermyn,	2,567	Rankin,	3,775
Jersey Shore,	3,800	Reading,	91,141
Johnsonburg,	5,462	Renovo,	4,082
Johnstown,	43,250	Reynoldsville,	3,823
Kane,	6,707	Ridgway,	4,482
Kingston,	4,725	Rochester,	5,311
Kittanning,	4,386	Royersford,	3,082
Knoxville,	4,584	Sayre,	5,243
Lancaster,	47,129	Schuylkill Haven,	3,994
Lansdale,	3,292	Scottsdale,	5,202
Lansdowne,	3,683	Scranton,	118,692
Lansford,	5,418	Sewickley,	4,043
Latrobe,	5,229	Shamokin,	20,482
Lebanon,	19,404	Sharon,	11,909
Leechburg,	2,782	Sharpsburg,	8,008
Lehighton,	5,631	Sharpsville,	3,354
Lewisburg,	3,582	Shenandoah,	22,949
Lewistown,	5,158	Sheridan,	2,948
Lock Haven,	7,210	Shippensburg,	3,852
Luzerne,	4,668	Slatington,	4,407
Lykens,	2,949	South Bethlehem,	15,005
McDonald,	2,941	South Fork,	3,439
McKeesport,	43,438	South Williamsport,	3,585
McKees Rocks,	9,151	Spring City,	3,027
Mahanoy City,	14,836	St. Clair,	5,213
Marietta,	2,509	St. Marys,	5,824
Mauch Chunk,	4,029	Steelton,	13,911
Mayfield,	2,663	Stroudsburg,	4,069
Meadville,	11,769	Summit Hill,	3,088
Mechanicsburg,	3,931	Sunbury,	10,963
Media,	3,278	Susquehanna,	3,813
Middletown,	5,925	Tamaqua,	7,995
Millvale,	8,492	Tarentum,	5,979
Milton,	6,690	Taylor,	4,215
Minersville,	5,602	Titusville,	8,346
Monongahela,	5,819	Towanda,	4,959
Mt. Carmel,	16,137	Turtle Creek,	3,262
Mt. Oliver,	2,595	Tyrone,	6,532
Mt. Pleasant,	5,401	Union City,	3,610
Myersdale,	3,730	Uniontown,	7,935
Nanticoke,	13,358	Warren,	10,647
Nazareth,	2,896	Washington,	8,034
New Brighton,	7,542	Waynesboro,	6,347
New Castle,	36,847	Waynesburg,	2,810
New Kensington,	4,665	Wellsboro,	2,954
North Braddock,	6,535	West Bethlehem,	3,889
Norristown,	23,747	West Chester,	10,424
Northumberland,	2,750	West Hazleton,	3,467
Oakmont,	2,710	West Newton,	2,576
Oil City,	14,662	West Pittston,	7,010
Old Forge,	5,630	West Washington,	2,693
Olyphant,	7,438	Wilkes-Barre,	60,121
Ornassus,	2,556	Wilkinsburg,	16,949
Orsons,	2,599	Williamsport,	29,735
Patton,	2,651	Williamstown,	3,300
Pen Argyl,	3,190	Wilmerding,	6,435
Philadelphia,	1,441,735	Winton,	4,402
Phillipsburg,	3,279	York,	39,168
Poenixville,	9,604		



The comparative mortality by number of decedents from twenty principal causes of death in 1906.



MORTALITY.

The number of deaths recorded in 1906 was 123,132. Of this number 114,435 are treated statistically, the balance, 8,697 being still births and, therefore, properly excluded from consideration in the text or tables relating to deaths.

The death rate per 1,000 of population was 16.5.

On a division of population into urban and rural, upon the basis adopted by the United States Census Office, namely, classifying all boroughs under 8,000 population together with townships as rural, the urban death rate was 18.1 and the rural death rate 15.1.

On a division of population into urban and rural based upon the fact of municipal incorporation as mentioned in the report of population, the urban rate was 17.4 and the rural rate 13.2.

General death rates while affording an exact statement of mortality incident to each particular locality under the actual conditions existing therein, should not be used for purposes of comparison, particularly in reference to sanitary conditions, unless the constitution of population as to sex, color, age distribution, nativity and occupation, in the localities compared be taken into careful consideration and proper corrections made therefor.

The greatest number of deaths occurred in August and the lowest in June, while the spring months furnished the lowest quarterly rate.

Deaths by months and quarters with corresponding annual rates per 1,000 of population.

	By Months.		By Quarters.	
	Deaths.	Rate.	Deaths.	Rate.
January,	9,404	16.3		
February,	9,557	16.5	29,629	17.1
March,	10,668	18.4		
April,	10,000	17.4		
May,	9,109	15.7	27,286	15.7
June,	8,171	14.1		
July,	9,958	17.2		
August,	10,371	17.9	30,277	17.5
September,	9,478	16.4		
October,	9,054	15.7		
November,	8,686	15.0	27,704	16.0
December,	9,964	17.2		
Unknown,	15			

Of the total deaths, 62,642 occurred to males and 51,973 to females, giving a death rate per 1,000 of each sex living of 17.8 for males and 15.2 for females.

Thirty-four per cent. of all deaths occurred to children under five years of age and twenty-four and three-tenths per cent. to children less than one year old.

The death rate per 1,000 of native population was 14.5, of native males 15.4, and of native females 13.4.

The death rate per 1,000 of foreign population was 21.2 and of foreign males 22.8 and of foreign females 19.3. The death rate per 1,000 of whites was 16.2 and of blacks 27.5.

Death rates at certain age periods.

Ages.	Death rates per 1,000 popula- tion of corre- sponding age.
Under 5 years,	48.5
5 to 14 years,	3.3
15 to 24 years,	6.1
25 to 34 years,	7.0
35 to 44 years,	10.1
45 to 54 years,	14.8
55 to 64 years,	30.2
65 to 74 years,	54.4
75 to 84 years,	133.4
85 years,	282.9
Unknown,	25.3

Deaths by sex and age periods.

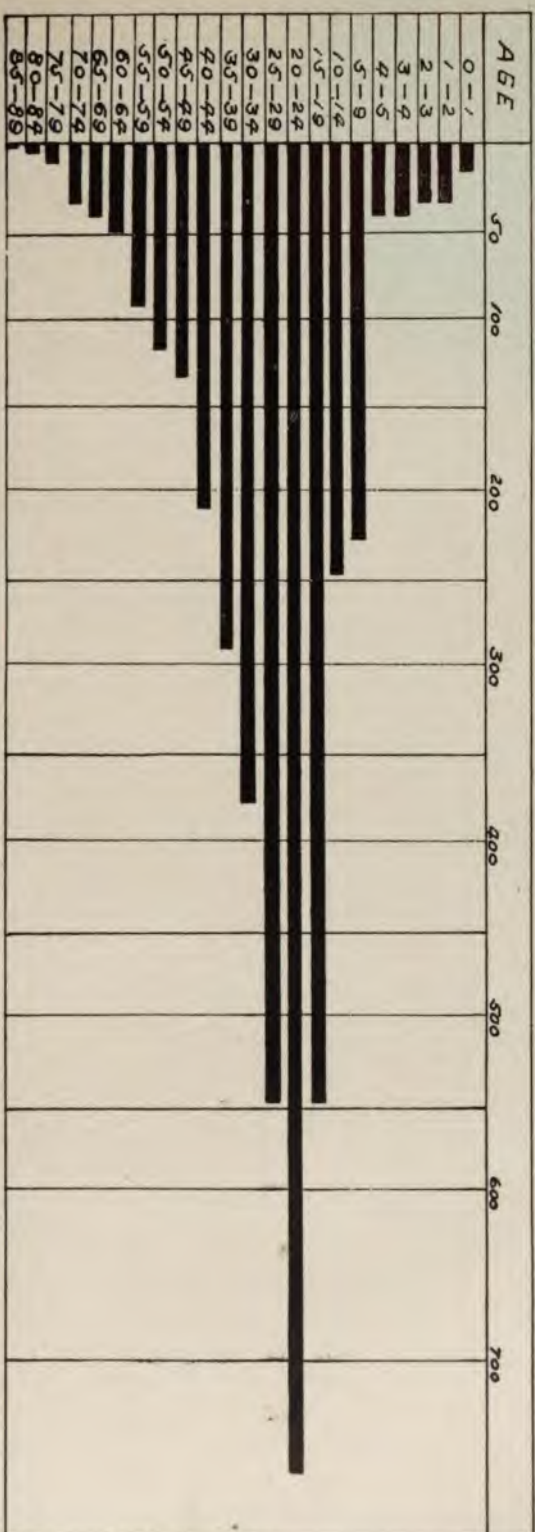
Ages.	Deaths.			Per Cent. of Deaths at Each Age to Total at all Ages.			Deaths of males to 100 females.
	Total.	Male.	Female.	Total.	Male.	Female.	
All ages,	114,435	62,642	51,793	100.0	100.0	100.0	120
Under 1 year,	27,908	15,796	12,112	24.4	25.2	23.4	120
1 to 2 years,	6,125	3,185	2,940	5.4	5.1	5.7	108
2 to 3 years,	2,395	1,222	1,113	2.1	2.1	2.1	115
3 to 4 years,	1,463	721	742	1.2	1.1	1.4	98
4 to 5 years,	1,060	517	543	0.9	0.8	1.1	86
Total under 5 years,	36,951	21,501	17,450	34.0	34.3	33.7	123
5 to 9 years,	2,916	1,497	1,419	2.5	2.4	2.6	105
10 to 14 years,	1,897	1,014	883	1.7	1.6	1.8	114
15 to 19 years,	3,402	1,849	1,553	3.0	2.9	3.1	119
20 to 24 years,	4,744	2,794	1,950	4.1	4.5	3.8	143
25 to 29 years,	4,779	2,761	2,018	4.2	4.4	3.9	126
30 to 34 years,	4,563	2,622	1,940	4.0	4.2	3.8	125
35 to 39 years,	4,771	2,879	1,892	4.2	4.7	3.7	153
40 to 44 years,	4,199	2,530	1,669	3.6	4.1	3.2	151
45 to 49 years,	4,457	2,598	1,859	3.9	4.1	3.4	138
50 to 54 years,	4,559	2,636	1,923	3.9	4.2	3.7	127
55 to 59 years,	4,911	2,764	2,147	4.3	4.4	4.2	122
60 to 64 years,	5,671	3,029	2,642	4.9	4.8	4.9	119
65 to 69 years,	6,086	3,228	2,858	5.2	5.1	5.5	111
70 to 74 years,	6,120	3,058	3,072	5.4	4.8	5.9	89
75 to 79 years,	5,602	2,734	2,868	4.9	4.8	5.5	89
80 to 84 years,	3,861	1,765	2,096	3.4	2.8	3.9	84
85 to 89 years,	1,972	858	1,114	1.8	1.5	2.1	77
90 to 94 years,	639	243	396	0.5	0.4	0.7	61
95 years,	154	52	102	0.1	0.3	0.2	50
Unknown,	332	246	87	0.3	0.4	0.1	291

Of the total number of deaths from all causes, 7,090 occurred as the result of premature birth and congenital affections, 10,180 as the result of violence, and 97,345 as the result of disease. Of the latter number 20,814, or 21.3 per cent. were due to infectious and entirely preventable causes.

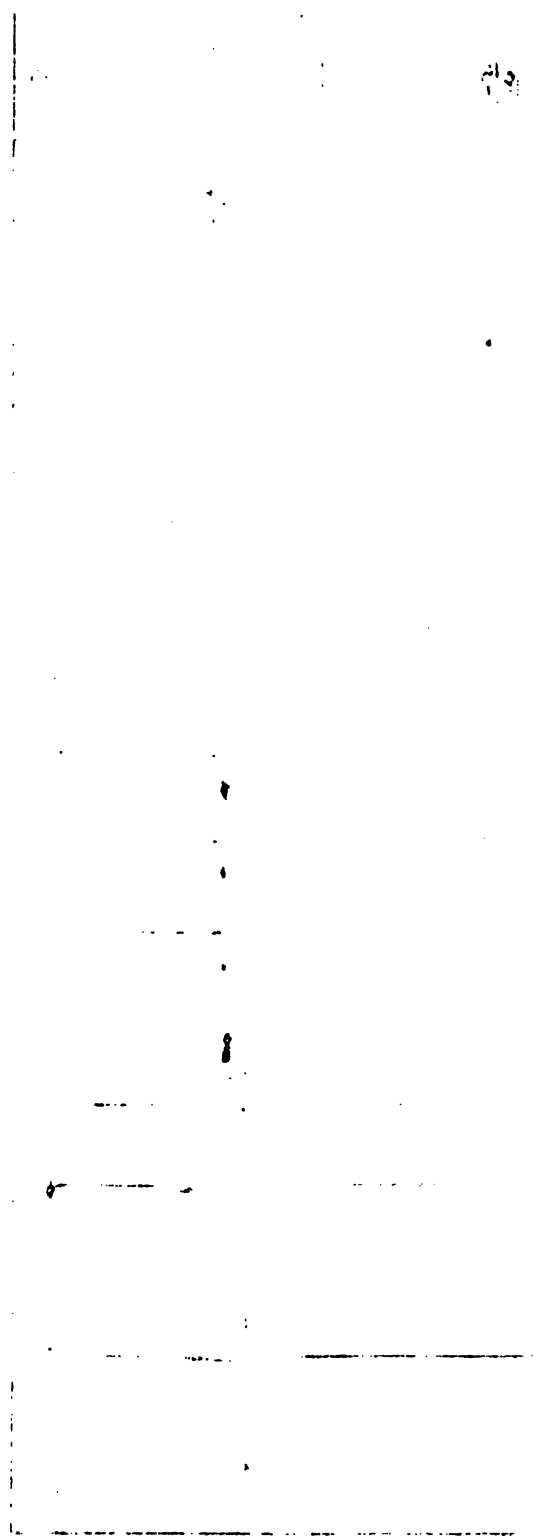
Death rates for certain cities and boroughs and groups of cities and boroughs.

Group 1. Cities over 500,000,	19.3
Philadelphia,	19.3
Group 2. Cities between 100,000 and 500,000,	18.8
Allegheny,	17.9
Pittsburg,	19.9
Scranton,	16.5
Group 3. Cities between 50,000 and 100,000,	14.7
Erie,	14.5
Harrisburg,	14.8
Reading,	14.5
Wilkes-Barre,	14.9
Group 4. Cities between 25,000 and 50,000,	17.4
Allentown,	16.3
Altoona,	15.0
Chester,	15.5
Easton,	15.7
Johnstown,	16.9
Lancaster,	14.7
McKeesport,	19.9
New Castle,	13.8
Norristown,*	25.6
Williamsport,	16.4
York,	14.8
Group 5. Cities and boroughs between 10,000 and 25,000 population, ...	15.7
Beaver Falls,	14.7
Braddock,	23.0
Bradford,	12.4
Butler,	22.2

*Including deaths from State Insane Hospital.



The comparative mortality from typhoid fever by number of decedents at each age period.



Carbondale,	19.8
Carlisle,	12.8
Columbia,	11.6
DuBois,	13.7
Dunmore,	17.0
Duquesne,	23.0
Hazleton,	13.5
Homestead,	19.2
Lebanon,	15.7
Mahanoy City,	20.3
Meadville,	13.2
Mt. Carmel,	12.8
Nanticoke,	18.8
Oil City,	12.0
Pittston,	20.6
Plymouth,	15.4
Pottstown,	16.3
Pottsville,	19.0
Shamokin,	14.1
Sharon,	18.6
Shenandoah,	24.3
South Bethlehem,	19.1
Steelton,	18.0
Sunbury,	15.1
Warren,	11.4
West Chester,	21.0
Wilkesburg,	14.3
Group 6. Cities and boroughs between 5,000 and 10,000 population,	17.7
Archbald,	16.4
Ashland,	14.0
Bangor,	14.0
Bethlehem,	19.0
Bloomsburg,	13.2
Bristol,	15.3
Carnegie,	24.0
Chambersburg,	17.6
Charleroi,	20.5
Clearfield,	12.0
Coatesville,	27.3
Connellsville,	22.1
Conshohocken,	18.2
Corry,	17.8
Danville,	14.2
Dickson City,	17.7
Edwardsville,	20.0
Etna,	15.7
Forest City,	16.3
Franklin,	16.0
Freeland,	10.0
Greensburg,	29.6
Greenville,	13.2
Hanover,	17.9
Huntingdon,	16.1
Indiana,	14.7
Jeannette,	12.5
Johnsonburg,	10.2
Kane,	12.8
Lansford,	20.3
Latrobe,	17.0
Lehighton,	11.9
Lewistown,	25.6
Lock Haven,	18.1
McKees Rocks,	29.3
Middletown,	13.6
Millvale,	17.2
Milton,	13.0
Minersville,	16.2
Monongahela,	16.8
Mt. Pleasant,	18.8
New Brighton,	15.9
North Braddock,	38.2
Old Forge,	25.0
Olyphant,	14.4
Phoenixville,	20.0
Punxsutawney,	23
Rochester,	25

Sayre,	22.8
Scottdale,	11.1
Sharpsburg,	13.4
St. Clair,	24.5
St. Marys,	10.3
Tamaqua,	13.6
Tarentum,	15.2
Titusville,	13.6
Tyrone,	11.0
Uniontown,	29.4
Washington,	27.1
Waynesboro,	14.1
West Pittston,	11.2
Wilmerding,	15.2
Group 7. All cities and boroughs between 2,500 and 5,000,	14.1
Group 8. Boroughs under 2,500,	20.1
Group 9. Rural districts,	13.2

TYPHOID FEVER.

There were 3,917 deaths from typhoid fever in the entire State. No other epidemic disease occasioned so many fatalities. The rate per 100,000 of population was 56.5.

The mortality of typhoid as compared with the number of cases recorded during the year was 16 per cent. This rate is so much higher than what is usually accorded to this disease that it would indicate a very strong possibility that while the deaths were properly registered, many non-fatal cases were unreported. A further analysis of deaths to cases would somewhat modify this assumption and would on the other hand show that the case rate mortality of typhoid as stated by text books, i. e., 8 to 10 per cent., is too low when applied to a large number of cases, distributed in cities and boroughs of widely varying size and in rural districts.

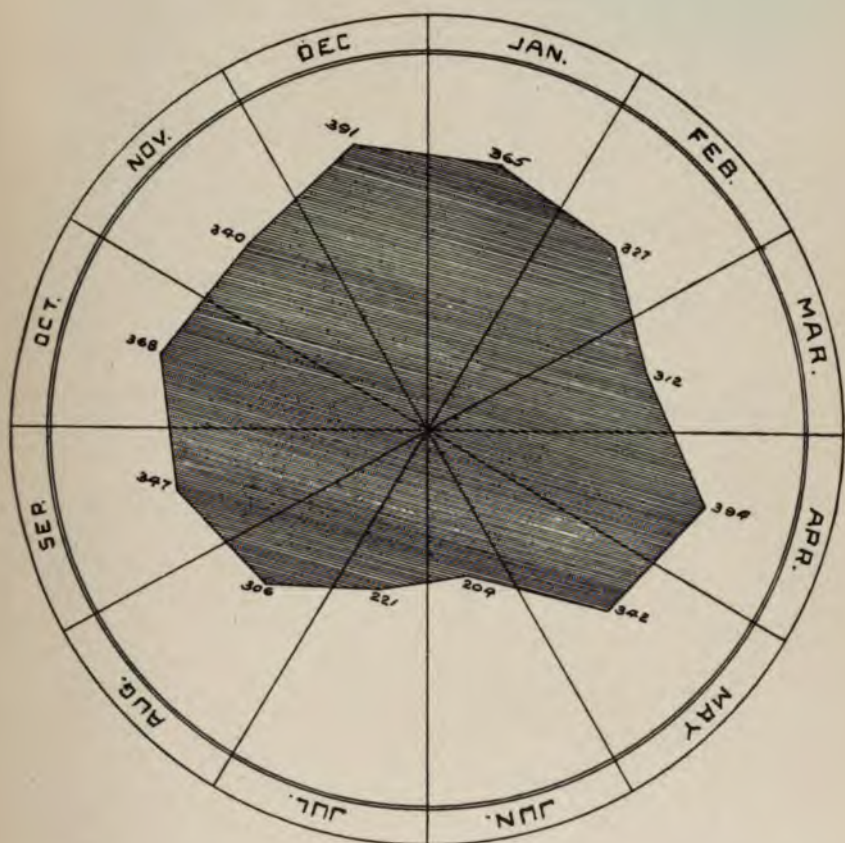
In our larger cities with abundant hospital and nursing facilities the case rate mortality of typhoid is naturally at its lowest, but as we descend the scale of population and become farther removed from these influences this mortality steadily rises and reaches its highest point in the remote rural districts. The rate for urban cases (all cities and boroughs) was 14.2 and for rural cases 36.2.

The percentage of cases of typhoid fever to total cases and percentage of deaths to total deaths by months.

Months.	Percentage of cases to total cases.	Percentage of deaths to total deaths.
January,	8.9	9.3
February,	9.4	8.4
March,	7.7	7.9
April,	8.8	10.0
May,	7.6	8.8
June,	4.9	5.1
July,	5.6	5.7
August,	8.3	7.8
September,	9.6	8.9
October,	9.8	9.4
November,	7.8	8.7
December,	11.6	10.0

Deaths from typhoid fever by months.

Total,	Entire State. 3,917	Urban. 3,210	Rural. 707
January,	365	312	53
February,	327	285	42
March,	312	265	47
April,	394	331	63
May,	342	289	53
June,	204	180	24
July,	221	192	29
August,	306	255	51
September,	347	251	96
October,	368	262	106
November,	340	256	84
December,	391	332	59



The comparative mortality from typhoid fever by the number of decedents for each month.



Deaths from Typhoid Fever by Sex and Age Periods.

Total,	3,917
Male,	2,393
Female,	1,524
Under 1 year,	16
1 to 2 years,	38
2 to 3 years,	38
3 to 4 years,	44
4 to 5 years,	43
Total under 5 years,	179
5 to 9 years,	234
10 to 14 years,	255
15 to 19 years,	545
20 to 24 years,	767
25 to 29 years,	559
30 to 34 years,	377
35 to 39 years,	294
40 to 44 years,	210
45 to 49 years,	137
50 to 54 years,	120
55 to 59 years,	110
60 to 64 years,	55
65 to 69 years,	38
70 to 74 years,	29
75 to 79 years,	13
80 to 84 years,	5
85 to 89 years,	2
Unknown, .....f.....	7

DIPHTHERIA.

Diphtheria was responsible for 2,438 deaths during the year. The death rate per 100,000 of population was 35.2.

Deaths from Diphtheria by Months.

Entire year,	2,438
January,	266
February,	213
March,	205
April,	159
May,	157
June,	85
July,	89
August,	116
September,	210
October,	318
November,	308
December,	312

The case rate mortality for the year was 22.4 per cent. January furnished the highest case rate mortality and June the lowest, while October furnished the greatest number of deaths. The deaths correspond very closely to the distribution of cases by months. The influence of school life is apparent in the incidence of death as well as cases.

Deaths from Diphtheria by Sex and Age Periods.

Total,	2,438
Males,	1,214
Females,	1,224
Under 1 year,	173
1 to 2 years,	373
2 to 3 years,	363
3 to 4 years,	319
4 to 5 years,	303
Total under 5 years,	1,531

5 to 9 years,	648
10 to 14 years,	144
15 to 19 years,	44
20 to 24 years,	18
25 to 29 years,	15
30 to 34 years,	14
35 to 39 years,	8
40 to 44 years,	3
45 to 49 years,	4
50 to 54 years,	2
55 to 59 years, .....	..
60 to 64 years, .....	..
65 to 69 years,	4
70 to 74 years,	2
Unknown,	1

Case Rate Mortality by Months.

Entire State, (year),	22.4
January,	25.5
February,	24.0
March,	23.9
April,	22.6
May,	22.1
June,	15.4
July,	20.3
August,	27.3
September,	21.1
October,	20.0
November,	21.1
December,	25.6

SCARLET FEVER.

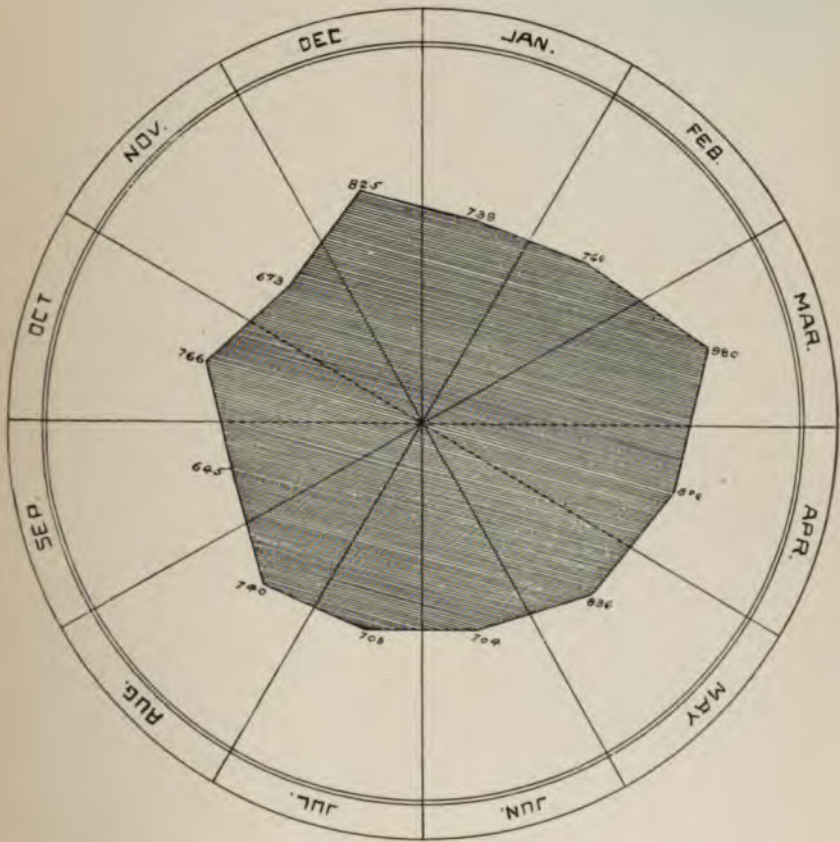
Deaths from scarlet fever numbered 577. The death rate per 100,000 of population was 8.3.

Deaths from Scarlet Fever by Age Periods.

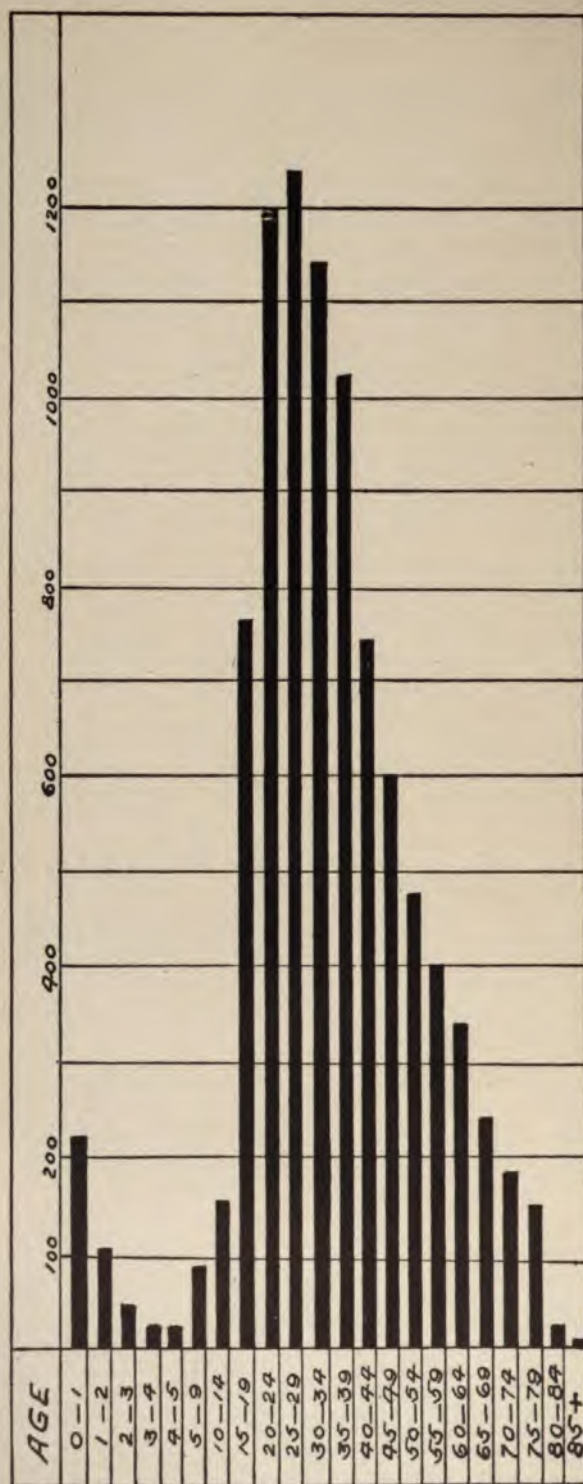
Total,	577
Males,	270
Females,	307
Under 1 year,	43
1 to 2 years,	69
2 to 3 years,	90
3 to 4 years,	92
4 to 5 years,	62
Total under 5 years,	356
5 to 9 years,	171
10 to 14 years,	23
15 to 19 years,	11
20 to 24 years,	5
25 to 29 years,	5
30 to 34 years,	4
Over 35 years,	1
Unknown,	1

Death from Scarlet Fever by Months.

Total,	577
January,	51
February,	62
March,	59
April,	67
May,	72
June,	32
July,	38
August,	28
September,	34
October,	33
November,	53
December,	48



The comparative mortality from tuberculosis of the lungs
by the number of decedents for each month.



The comparative mortality from tuberculosis of the lungs by number of decedents at each age period.

MEASLES.

Measles was epidemic throughout the State and was responsible for 1,463 deaths during the year. The rate per 100,000 of population was 21.1.

By comparison with the deaths from scarlet fever and diphtheria, measles, which is popularly regarded as an inevitable disease of childhood and not of serious consequence, is found to furnish two and one-half times the number of deaths from scarlet fever and three-fifths of the number from diphtheria.

The second year of life contributed the greatest number of deaths.

Deaths from Measles by Sex and Age Periods.

Total,	1,463
Males,	785
Females,	678
Under 1 year,	366
1 to 2 years,	478
2 to 3 years,	210
3 to 4 years,	116
4 to 5 years,	70
Total under 5 years,	1,240
5 to 9 years,	129
10 to 14 years,	28
15 to 19 years,	19
20 to 24 years,	16
25 to 29 years,	5
30 to 34 years,	4
35 to 39 years,	7
40 to 44 years,	3
45 to 49 years,	4
50 years,	5

WHOOPIING COUGH.

Whooping cough was responsible for 1,550 deaths during the year, giving a death rate per 100,000 of population of 22.4.

The comparative rates for the four epidemic diseases largely incident to childhood show that measles and whooping cough, the two affections popularly regarded with the least concern, show proportionately almost three times the rates of scarlet fever and 60 per cent. of the rate of diphtheria.

	Rate per 100,000 of population.
Scarlet fever,	8.3
Measles,	21.1
Whooping cough,	22.3
Diphtheria,	35.2

The deaths among females was greater than among males. 65.8 per cent. occurred during the first year of life and 96.2 per cent. under 5 years.

Deaths from Whooping Cough by Sex and Age.

Total,	1,550
Males,	679
Females,	871
Under 1 year,	881
1 to 2 years,	251
2 to 3 years,	135
3 to 4 years,	83
4 to 5 years,	58
Total under 5 years,	1,491
5 to 9 years,	51
Over 10 years,	6
Unknown age,	2

TUBERCULOSIS.

Tuberculosis was responsible for 10,780 deaths during the year. Of this number 9,258 or 85.9 per cent. were due to tuberculosis of the lungs, and 1,522 to tuberculosis in other forms. It is quite possible and in fact very probable that pulmonary tuberculosis existed in some of the deaths classed under other forms, particularly in deaths ascribed to general tuberculosis and tuberculosis of the larynx. The distribution under the sub-divisions of tuberculosis was as follows:

Tuberculosis of lungs,	9,258	85.9 per cent.
Tuberculosis of larynx,	98	0.9 per cent.
Tuberculosis meningitis,	549	5.1 per cent.
Abdominal tuberculosis,	433	4.1 per cent.
Potts disease,	107	0.9 per cent.
Tuberculosis abscess,	15	0.1 per cent.
White swelling,	57	0.5 per cent.
Tuberculosis of other organs,	109	1.0 per cent.
General tuberculosis,	164	1.5 per cent.

The death rate per 100,000 of population from tuberculosis of the lungs was 133.6.

The fact that tuberculosis alone causes one-tenth of all deaths from diseases in our State stamps it as the most serious menace to which our people are exposed. There is, furthermore, no doubt that many deaths are returned under other causes which rightfully should be charged to tuberculosis. This applies particularly to deaths from the wasting diseases of childhood which are returned most frequently as "marasmus." There seems, furthermore, to be more or less of a prejudice in the mind of many physicians as well as the laity against the use of the word tuberculosis in any form on a death certificate, the effect of such a statement upon the life insurance of the deceased, or upon any prospective insurance of living relatives being apparently the most potent cause of such sentiments. The result is that such terminal or concurrent conditions as "bronchitis," "pneumonia" or "hemorrhage of the lungs" are sometimes given as the cause of death and pulmonary tuberculosis excluded when the disease has been actually present. While from the purely speculative character as to the number of such returns we are unable to give them any statistical consideration; the fact that they do exist should be sufficient to caution physicians as to the importance of a definite statement in all death certificates where tuberculosis in any form existed.

Deaths from Tuberculosis of the Lungs by Sex and Age.

Males,	4,786
Females,	4,472
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Under 1 year,	212
1 to 2 years,	103
2 to 3 years,	56
3 to 4 years,	29
4 to 5 years,	27
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Total under 5 years,	427
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5 to 9 years,	89
10 to 14 years,	166
15 to 19 years,	784
20 to 24 years,	1,207
25 to 29 years,	1,249
30 to 34 years,	1,129
35 to 39 years,	1,035
40 to 44 years,	732
45 to 49 years,	617
50 to 54 years,	473
55 to 59 years,	404
60 to 64 years,	319
65 to 69 years,	243
70 to 74 years,	194
75 to 79 years,	118
80 to 84 years,	33
85 and over,	14
Unknown,	25



The comparative mortality from pneumonia by number of decedents at each age period.

Deaths from Tuberculosis of the Lungs by Months.

January,	739
February,	766
March,	980
April,	876
May,	836
June,	704
July,	708
August,	740
September,	645
October,	766
November,	673
December,	825

Number of Deaths from Tuberculosis by Sex at Certain Age Periods per 100,000 Living Persons at Each Age.

Under 5 years,	53
5 to 9 years,	11
10 to 14 years,	24
15 to 19 years,	119
20 to 24 years,	181
25 to 29 years,	197
30 to 34 years,	204
35 to 39 years,	210
40 to 44 years,	183
45 to 49 years,	186
50 to 54 years,	170
55 to 59 years,	191
60 to 64 years,	188
65 to 69 years,	198
70 years and over,	213

Fifty per cent. of all cases occurred between the ages of 20 and 40 years. At the age periods, 5 to 30 and over 75, the deaths of females exceed the deaths of males while at all other ages deaths of males are in excess.

CANCER.

Deaths from cancer in all forms were 4,208. Subdivided according to the International Classification the number of deaths returned for each class was as follows: ●

Cancer of the mouth,	160
Cancer of the stomach and liver,	1,620
Cancer of the intestines,	440
Cancer of the female genital organs,	595
Cancer of the breast,	399
Cancer of the skin,	160
Cancer of other and unspecified organs,	834

Two thousand nine hundred and twenty-four of the deaths occurred to females and 1,484 to males. Deaths of males exceeded those of females from cancer of the mouth and of the skin. 20.3 per cent. of all deaths from cancer among females were due to cancer of the female genital organs, and 13.6 per cent. to cancer of the breast.

The percentage of deaths (19.8) from cancer of other and unspecified organs might be very much reduced by the exercise of more care on the part of physicians in naming the special organs affected, which would permit of a more definite classification.

Diseases of the Nervous System.

The total number of deaths registered as due to diseases of the nervous system was 11,880, giving a rate per 100,000 of population of 171.4.

Fifty-four per cent. of the deaths occurred among males and 45 per cent. among females.

The most important individual causes under this grouping are meningitis, apoplexy and convulsions.

Deaths from meningitis, the stated result of tuberculosis or traumatism, are classed under tuberculosis and violence, respectively.

The use of the expression "cerebro-spinal meningitis" as a cause of death when the definite infective disease cerebro-spinal meningitis (epidemic), or cerebro-spinal fever was not in reality the cause of death inevitably leads to some inaccuracies in the assignments to "meningitis." The failure to recognize

or state the primary cause of meningitis which is so frequently secondary to some other disease or to violence, also necessarily adds to the number of deaths assigned to this affection when a more specific statement would place them under other headings.

Deaths from apoplexy, which title includes cerebral congestion and hemorrhage, numbered 5,219. For practical purposes deaths from paralysis, without indicated cause which numbered 1,061, may be considered jointly with deaths from apoplexy. The death rate per 100,000 of population for the above combined causes was 91.0.

Deaths from convulsions, excluding the puerperal conditions, numbered 1,801. Of these 1,732 occurred in children under five years of age. There is little doubt but that the vast majority of these were due to other causes, which, if stated would permit of different classification.

Diseases of the Circulatory System.

Deaths from diseases of the circulatory system numbered 10,687, giving a rate per 100,000 of population of 154.2.

Of the total deaths, 8,533 were returned as being due to heart disease. Four hundred and eighty-two additional returns were made as due to heart failure, but as the latter term is regarded as too indefinite for other classification they are not included in these figures, although the presumption may be that heart disease in some form was in reality the cause of death. Deaths from this disease were about equally distributed between urban and rural districts.

Diseases of the Respiratory System.

In considering the deaths from this class of diseases which numbered 13,840, it must be remembered that tuberculosis of the lungs and influenza are not considered, as deaths from both of these causes are found under their respective titles in the division of general diseases.

The rate per 100,000 of population was 199.7.

The death among males was 55.6 per cent. of the total and among females 44.4 per cent. Pneumonia was the cause of 7,145 deaths or 53.5 per cent. of all deaths under this grouping, broncho-pneumonia being next in importance with 2,813 deaths. Of the deaths from broncho-pneumonia, 75.6 per cent. occurred under five years of age, while from pneumonia but 39.8 per cent. occurred during the same age period.

Diseases of the Digestive System.

Deaths from the diseases embraced in this class numbered 17,263. The rate per 100,000 of population was 249.1.

The most important single cause of death in this class was diarrhoea and enteritis which includes "cholera infantum". The number of deaths registered under this cause alone was 11,249, or 65.1 per cent. of the total deaths.

Nine thousand seven hundred and ninety-six, or 87.1 of all deaths from diarrhoea and enteritis occurred in children under two years of age.

When we consider the extremely narrow age periods in which this large number of deaths occur we get some conception of the enormous loss of infant life from this single cause. For every 100,000 children under the age of two years, 2,390, or one in every forty, died from this affection. No other disease levies such a toll upon our people at any age. Six thousand eight hundred and seventy-three, or 70.1 per cent. of the deaths under two years of age occurred during July, August and September, showing the influence of season as a cause of diarrhoeal diseases in infancy.

Diseases of the Genito-Urinary System.

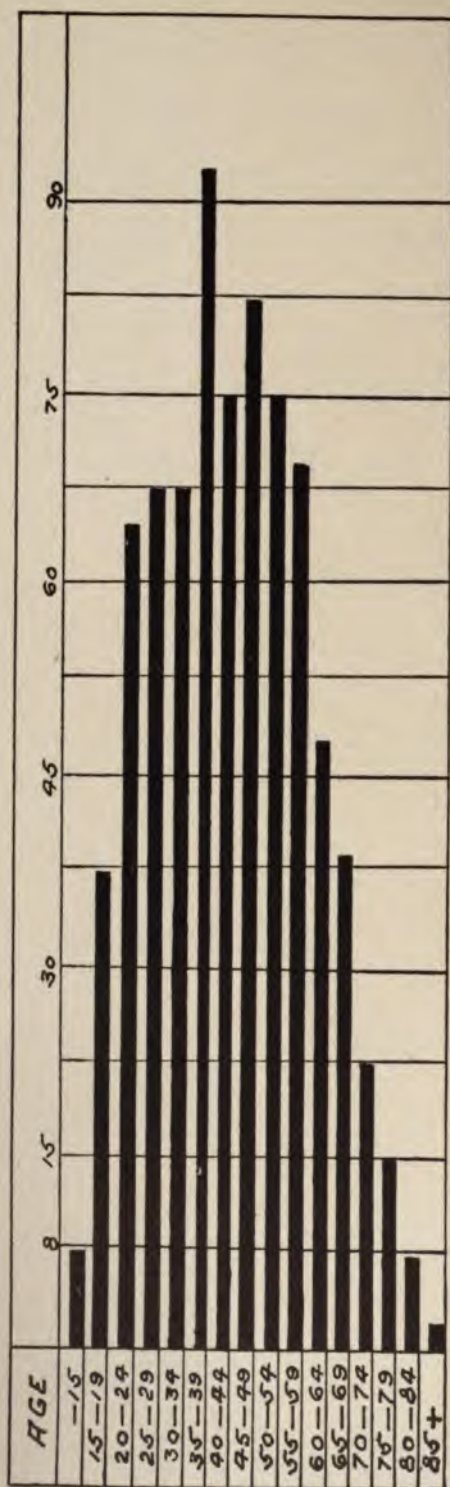
Seven thousand, two hundred and nineteen deaths occurred from diseases of the genito-urinary system, giving a death rate per 100,000 of population of 104.2.

The most important single cause of death in this group of diseases was acute nephritis.

The deaths compiled under acute nephritis numbered 608 and include returns of acute nephritis and acute Brights disease. The deaths credited to Brights disease numbered 5,414 and include all returns of Brights disease, chronic Brights disease, nephritis, chronic nephritis and uraemia.



The comparative mortality from heart disease by number of decedents at each age period.



The comparative mortality from suicide by number of decedents at each age period.

VIOLENCE.

Deaths from violence numbered 10,180, giving a rate per 100,000 of population of 146.9.

The deaths were distributed among the principal forms of violence as follows:

Suicide,	780
Fractures,	537
Burns and scalds,	847
Drowning,	555
Accidental gunshot wounds,	149
Injuries in mines,	983
Railroad accidents,	2,387
Homicide,	365

Of the total suicides 605 were males and 175 females. Of the various forms of suicide 254 were by firearms, 183 by poison and 150 by hanging.

The rate per 100,000 of population was 11.2.

Seven suicides were less than fifteen years of age, the youngest being twelve years.

In comparison with other causes, railroad accidents contributed the largest number of violent deaths. Of this number 228 deaths were the result of street car injuries and 2,159 from steam railroads. The rate per 100,000 of population was 34.4. One homicide occurred for each day in the year; the rate per 100,000 of population was 5.3.

In Table 1 the deaths from all causes for incorporated municipalities over 8,000 population and for the rural parts of each county are shown by months.

In Table 2 are shown the deaths from each specified disease and class of diseases by sex and yearly age periods under 5 years and quinquennial periods from 5 to 95 years.

In Table 3 the deaths from all causes are given for incorporated municipalities over 8,000 population and for the rural sections of all counties by yearly age periods under 5 years and by quinquennial periods between 5 and 95 years.

In Table 4 the number of deaths from each specified disease and class of disease is shown for all incorporated municipalities over 8,000 population and for the rural districts in each county.

In Table 5 the number of deaths at each age period is given by sex, color, general nativity and parent nativity.

TABLE 1.

Deaths from all causes for incorporated municipalities over 8,000 population and for the rural sections of each county by months.

	Month.													
	Total.	Jan- uary.	Febru- ary.	March.	April.	May.	June.	July.	August.	Sep- tember.	Octo- ber.	Novem- ber.	Decem- ber.	Un- known.
Total entire State,	114,435	9,404	9,557	10,688	10,000	9,109	8,171	9,953	10,371	9,478	9,054	8,686	9,964	15
Males,	62,652	5,120	5,216	5,715	5,494	5,031	4,551	5,434	5,676	5,109	5,044	4,779	5,471	13
Females,	51,783	4,284	4,341	4,973	4,506	4,078	3,620	4,519	4,695	4,369	4,010	3,907	4,493	3
Total cities and bor- oughs over 8,000 pop- ulation,	58,918	5,190	5,148	5,544	5,197	4,689	4,337	5,344	5,081	4,444	4,405	4,405	5,114	3
Males,	28,915	2,783	2,793	2,993	2,882	2,559	2,348	2,885	2,741	2,323	2,490	2,367	2,815	0
Females,	29,913	2,415	2,355	2,551	2,315	2,130	1,989	2,459	2,340	2,121	1,915	2,038	2,299	3
Allegheny,	2,692	229	256	345	324	183	165	222	223	157	122	112	121	.....
Males,	1,481	143	131	148	134	106	113	123	131	109	123	113	121	.....
Females,	1,211	86	125	197	190	77	72	100	91	82	91	87	103	.....
Allentown,	680	48	53	83	55	55	46	89	59	54	55	49	43	.....
Males,	347	17	22	40	29	23	24	39	27	31	26	30	29	.....
Females,	333	31	31	43	26	32	22	41	32	23	23	13	14	.....
Altoona,	712	94	69	58	59	53	48	62	57	62	59	56	54	.....
Males,	403	60	39	32	30	30	29	34	33	30	32	32	30	.....
Females,	309	34	30	26	19	23	19	28	24	33	22	24	24	.....
Beaver Falls,	151	12	16	14	12	16	4	18	15	4	9	14	11	.....
Males,	81	7	8	9	6	11	2	8	8	4	9	6	6	.....
Females,	70	5	8	5	6	5	2	10	7	4	5	8	5	.....
Braddock,	443	35	52	36	39	24	49	47	42	37	30	28	24	.....
Males,	271	22	33	21	27	10	27	23	27	23	25	16	17	.....
Females,	172	13	19	15	12	14	22	24	15	14	5	12	7	.....
Bradford,	206	14	13	14	22	27	16	12	13	24	17	9	21	.....
Males,	121	5	11	7	9	17	12	7	8	14	10	5	16	.....
Females,	85	8	7	7	13	10	4	5	5	10	7	4	5	.....
Butler,	270	21	26	16	18	10	21	26	44	17	23	19	18	.....
Males,	159	13	15	9	14	13	9	15	28	6	16	13	10	.....
Females,	111	8	11	7	4	8	12	11	16	11	7	6	8	.....
Carbondale,	297	30	18	29	23	15	15	29	38	34	26	18	22	.....
Males,	146	17	17	13	8	5	4	15	17	15	13	12	6	.....
Females,	151	13	6	7	15	10	11	14	21	19	13	6	16	.....
Carlisle,	129	12	11	6	15	12	6	13	16	11	10	10	15	1
Males,	67	6	5	2	4	8	0	8	8	6	7	8	8	0
Females,	72	6	6	4	11	5	6	5	8	5	3	2	7	1
Chambersburg,	170	12	12	18	11	15	10	11	17	15	13	20	16	.....
Males,	84	8	6	10	2	8	8	7	11	7	4	8	4	.....
Females,	86	4	6	8	9	7	2	4	6	8	9	12	12	.....

Chesler,	591	57	43	66	54	35	63	48	35	51	47	50	13	.....
Males,	315	44	23	23	24	16	26	28	15	21	24	22	21	.....
Females,	276	22	15	24	20	19	14	14	20	31	23	27	22	.....
Total,	156	13	11	11	8	13	7	7	11	16	12	10	10	.....
.....	84	6	7	10	4	10	11	11	12	9	6	6	4	.....
Danville,	112	11	7	3	11	5	2	2	10	7	5	10	11	.....
Males,	58	7	4	3	4	4	1	5	8	5	5	5	7	.....
Females,	54	4	3	2	7	1	1	5	2	2	1	5	4	.....
DuBois,	155	13	14	9	15	12	12	8	16	16	15	15	12	.....
Males,	89	9	9	6	9	5	11	5	9	9	9	8	8	.....
Females,	66	4	5	3	6	7	1	3	7	7	6	7	4	.....
Dunmore,	253	13	16	24	18	21	15	23	30	23	14	27	30	.....
Males,	143	8	11	13	12	13	8	16	13	13	9	13	20	.....
Females,	110	5	5	11	6	8	7	7	17	10	5	14	10	.....
Duquesne,	287	22	22	23	19	17	21	28	28	25	20	15	17	.....
Males,	154	10	14	16	12	11	11	23	15	15	9	7	11	.....
Females,	113	12	8	7	7	6	9	16	13	11	11	8	6	.....
Easton,	446	37	40	40	39	43	27	44	46	41	23	29	23	.....
Males,	239	17	19	11	11	12	16	25	19	23	10	17	13	.....
Females,	387	20	21	29	28	31	11	19	27	18	13	12	10	.....
Erie,	595	53	55	54	53	70	51	57	55	45	50	44	48	.....
Males,	327	32	35	34	35	40	23	33	33	37	26	24	30	.....
Females,	327	19	43	20	18	30	28	24	22	8	24	20	18	.....
Harrisburg,	441	23	27	31	31	44	22	43	34	23	39	35	30	.....
Males,	266	16	16	20	20	10	19	19	23	24	18	15	17	.....
Females,	124	7	13	11	11	8	10	12	11	11	9	9	11	.....
Hasleton,	133	9	13	5	11	3	9	6	11	13	7	9	6	.....
Males,	91	5	7	7	9	2	9	6	11	13	7	9	6	.....
Females,	238	19	26	22	21	2	21	38	29	23	20	31	21	.....
Homestead,	161	10	13	10	13	2	11	24	11	16	10	13	13	.....
Males,	127	9	15	12	9	7	10	14	11	12	10	13	13	.....
Females,	120	14	9	18	13	2	10	10	11	12	10	13	13	.....
Johnstown,	280	23	24	23	23	50	27	25	23	23	20	23	20	.....
Males,	150	10	13	10	13	2	11	24	11	16	10	13	13	.....
Females,	280	23	24	23	23	50	27	25	23	23	20	23	20	.....
Lancaster,	683	70	73	63	63	53	41	71	40	43	43	42	35	.....
Males,	338	23	31	33	30	26	17	53	24	19	24	16	23	.....
Females,	358	47	41	30	33	27	24	18	16	24	19	26	23	.....
Lebanon,	305	22	28	21	34	27	25	27	25	24	28	23	17	.....
Males,	153	11	18	10	19	12	12	12	13	9	15	15	7	.....
Females,	153	11	10	11	15	15	8	15	12	15	13	17	10	.....
McKeesport,	865	82	62	73	87	64	64	82	83	63	60	66	75	.....
Males,	536	57	39	54	50	43	43	47	43	37	38	39	49	.....
Females,	229	25	23	24	37	21	22	35	40	26	21	27	26	.....
Mahany City,	302	20	30	30	30	21	19	38	31	19	21	20	23	.....
Males,	172	14	18	22	20	12	10	19	16	9	9	12	11	.....
Females,	130	6	12	8	10	9	9	19	15	10	13	8	12	.....
Meadville,	134	5	15	13	14	23	12	12	10	11	13	16	13	.....
Males,	81	3	8	6	7	13	5	6	4	6	8	8	8	.....
Females,	77	2	7	7	7	10	7	6	9	5	5	8	5	.....
Mount Carmel,	208	16	16	25	12	18	14	16	16	32	17	13	10	.....
Males,	115	9	11	13	10	5	8	13	10	14	9	9	7	.....
Females,	98	7	5	12	2	13	6	3	6	18	8	4	3	.....

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2
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TABLE 1.—Continued.

	Month.													
	Total.	Jan- uary.	Febru- ary.	March.	April.	May.	June.	July.	August.	Sep- tember.	Octo- ber.	Novem- ber.	Decem- ber.	Un- known.
Bedford,	499	40	35	40	43	40	31	47	46	49	33	58	36	1
Males,	271	22	18	15	20	25	20	25	32	25	13	31	13	1
Females,	228	17	17	25	23	15	11	22	14	24	20	27	16	0
Berks,	1,242	51	121	118	127	103	73	99	131	115	96	83	93	0
Males,	584	51	67	51	63	59	36	39	68	48	60	43	43	0
Females,	658	73	67	67	64	44	37	60	63	67	36	40	50	0
Blair,	723	40	63	67	69	71	42	67	75	73	56	55	54	1
Males,	400	37	27	30	33	45	15	35	42	41	30	31	31	0
Females,	323	26	20	37	19	26	24	32	33	32	26	24	24	0
Bradford,	801	63	66	74	66	67	70	46	71	71	53	72	83	0
Males,	420	31	35	38	29	39	43	46	43	44	24	41	45	0
Females,	371	32	31	36	37	28	27	23	28	27	28	31	38	0
Bucks,	1,161	95	116	103	108	107	72	101	101	98	81	80	104	4
Males,	580	53	61	46	49	53	33	54	47	51	47	34	53	0
Females,	581	42	55	57	59	54	39	47	54	47	34	46	51	0
Butler,	553	41	40	48	52	50	47	39	59	27	51	43	53	1
Males,	292	17	19	29	29	25	24	19	37	13	31	25	33	0
Females,	260	23	21	19	23	25	23	20	22	14	20	17	20	0
Cambria,	1,399	115	119	157	106	102	82	128	139	120	123	101	108	0
Males,	71	68	68	51	53	54	51	72	81	69	69	66	57	0
Females,	604	44	53	78	46	48	31	56	58	51	53	35	51	0
Cameron,	99	7	5	8	9	6	8	6	5	13	9	11	9	0
Males,	56	4	4	5	4	5	5	4	3	10	3	5	4	0
Females,	40	3	1	3	5	1	3	2	2	3	6	6	5	0
Carbon,	741	53	67	63	63	62	46	46	86	60	56	66	77	0
Males,	420	24	27	25	26	24	15	16	40	24	31	30	34	0
Females,	321	29	40	38	37	38	30	30	46	36	25	36	43	0
Centre,	571	33	49	55	61	50	30	35	53	41	61	46	53	0
Males,	333	24	25	25	36	33	16	18	27	23	30	23	28	0
Females,	238	14	24	30	25	17	14	17	26	18	31	23	25	0
Chester,	1,735	98	117	124	117	108	84	134	148	127	86	93	98	0
Males,	706	48	61	69	60	60	47	74	77	63	48	47	57	0
Females,	630	50	56	55	57	48	39	60	71	64	38	46	41	0
Clarion,	412	33	20	40	29	34	25	25	30	59	37	34	40	0
Males,	222	23	13	18	14	19	19	14	17	30	21	20	24	0
Females,	180	10	7	22	15	15	6	11	13	29	16	14	16	0
Clearfield,	1,092	81	79	83	72	84	67	81	85	107	86	85	84	1
Males,	441	21	45	40	38	49	41	31	40	40	37	35	35	0
Females,	401	35	34	40	34	35	26	50	45	67	49	50	49	0

	439	34	32	47	41	39	26	27	33	54	37	33	33
Clinton,	Total,	21	11	31	20	21	17	18	30	35	17	16	17
	Males,	13	6	16	11	13	8	9	19	19	20	18	18
	Females,	8	5	15	9	8	9	9	11	16	17	16	16
Columbia,	Total,	42	34	53	58	37	40	30	51	62	49	52	52
	Males,	19	19	30	31	17	24	11	23	34	32	33	33
	Females,	23	15	22	27	20	16	19	28	28	17	19	19
Crawford,	Total,	551	49	69	48	52	53	47	44	44	44	47	47
	Males,	311	24	37	32	31	31	25	29	29	29	29	29
	Females,	240	25	32	16	21	22	22	15	15	15	18	18
Cumberland,	Total,	384	55	82	63	41	42	38	48	48	48	50	50
	Males,	225	23	32	20	15	22	19	28	28	28	28	28
	Females,	159	32	50	43	26	20	19	20	20	20	22	22
Dauphin,	Total,	331	31	35	32	33	21	54	64	64	64	64	64
	Males,	182	16	18	17	17	16	18	18	18	18	18	18
	Females,	149	15	17	15	16	5	36	46	46	46	46	46
Delaware,	Total,	335	39	43	38	38	34	30	41	41	41	41	41
	Males,	189	26	27	24	24	24	24	24	24	24	24	24
	Females,	146	13	16	14	14	10	6	17	17	17	17	17
Elk,	Total,	519	54	85	86	75	74	99	102	102	102	102	102
	Males,	274	40	41	41	37	45	59	59	59	59	59	59
	Females,	245	14	44	45	38	29	40	43	43	43	43	43
Elk,	Total,	470	40	41	41	37	45	59	59	59	59	59	59
	Males,	274	19	29	24	23	15	15	15	15	15	15	15
	Females,	196	21	12	17	14	30	44	44	44	44	44	44
Erie,	Total,	698	65	76	67	63	47	41	53	53	53	53	53
	Males,	383	31	36	36	36	25	25	25	25	25	25	25
	Females,	315	34	40	31	27	22	16	28	28	28	28	28
Fayette,	Total,	1,371	108	125	122	116	84	74	107	107	107	107	107
	Males,	737	55	63	61	58	41	36	53	53	53	53	53
	Females,	634	53	62	61	58	43	38	54	54	54	54	54
Forest,	Total,	78	3	10	8	8	3	2	10	10	10	10	10
	Males,	44	2	6	4	4	1	1	6	6	6	6	6
	Females,	34	1	4	4	4	2	1	4	4	4	4	4
Franklin,	Total,	649	46	78	57	54	41	53	63	63	63	63	63
	Males,	311	19	29	28	27	18	25	31	31	31	31	31
	Females,	338	27	49	29	27	23	28	32	32	32	32	32
Fulton,	Total,	131	12	11	11	13	9	14	15	15	15	15	15
	Males,	61	4	9	10	10	6	8	8	8	8	8	8
	Females,	70	8	2	1	3	3	6	7	7	7	7	7
Greene,	Total,	362	30	33	26	26	26	29	29	29	29	29	29
	Males,	175	18	16	14	16	11	16	16	16	16	16	16
	Females,	187	12	17	12	10	15	13	13	13	13	13	13
Huntingdon,	Total,	469	48	52	48	41	42	49	53	53	53	53	53
	Males,	275	24	23	22	23	23	23	23	23	23	23	23
	Females,	194	24	29	26	18	19	26	30	30	30	30	30
Indiana,	Total,	793	61	68	74	58	61	70	88	88	88	88	88
	Males,	427	25	34	37	31	38	39	44	44	44	44	44
	Females,	366	36	34	37	27	23	31	44	44	44	44	44
Jefferson,	Total,	861	58	74	77	69	60	58	77	77	77	77	77
	Males,	472	28	41	37	44	35	29	36	36	36	36	36
	Females,	379	30	33	40	25	25	29	41	41	41	41	41
Junata,	Total,	211	17	19	18	17	17	13	18	18	18	18	18
	Males,	120	10	11	10	8	9	7	11	11	11	11	11
	Females,	91	7	8	8	9	8	6	7	7	7	7	7
Lackawanna,	Total,	1,387	104	115	110	109	88	154	154	154	154	154	154
	Males,	732	52	59	61	57	47	87	87	87	87	87	87
	Females,	655	52	56	49	52	41	67	67	67	67	67	67

TABLE 2.
Deaths from each specified disease and class of diseases by sex and age periods.

Cause of death	All ages.	Un- der 1	1	2	3	4	Un- der 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39
All causes.....	114,435	27,596	6,125	2,395	1,462	1,090	38,961	2,916	1,897	3,402	4,744	4,779	4,562	4,771
Measles.....	62,612	15,756	3,155	1,282	721	517	21,500	1,497	1,014	1,549	2,734	2,761	2,623	2,879
Scarlet fever.....	51,722	12,113	2,946	1,113	742	543	17,461	1,419	883	1,360	1,960	2,018	1,940	1,882
Diphtheria.....	29,776	2,516	1,672	1,043	753	613	6,618	1,588	946	1,649	2,321	2,155	1,963	1,830
Whooping cough.....	14,915	1,329	862	516	370	256	3,403	777	352	739	1,235	1,145	1,089	997
Polio.....	14,941	1,157	831	527	383	317	3,215	811	463	910	1,096	1,010	924	833
Typhoid fever.....	2,262	11	20	20	23	23	97	117	97	315	517	379	251	189
Malaria.....	1,624	5	18	18	21	20	82	117	136	240	260	171	136	106
Small pox.....	2	2	3	1	2	1	5	2	2	2	4	2	4	1
Measles.....	4	4	2	2	1	1	5	2	2	2	1	2	4	1
Scarlet fever.....	785	202	272	118	69	1	2	63	12	10	11	2	1	1
Diphtheria.....	678	164	206	92	57	40	559	67	16	9	5	3	3	6
Whooping cough.....	270	20	33	40	49	24	166	84	9	5	2	2	1	1
Polio.....	397	23	36	50	43	38	190	87	14	6	3	3	3	3
Typhoid fever.....	679	428	190	51	29	28	656	20	1	1	1	1	1	1
Malaria.....	871	455	221	84	64	21	835	31	1	1	1	1	1	1
Diphtheria.....	977	621	148	128	136	110	594	264	74	25	10	9	6	2
Scarlet fever.....	946	60	133	154	121	126	634	290	66	19	8	6	6	6
Whooping cough.....	237	25	38	43	29	41	186	48	3	3	1	1	1	1
Polio.....	238	26	54	39	33	26	173	46	3	3	5	13	7	13
Typhoid fever.....	251	37	10	6	4	7	64	11	4	6	12	11	8	7
Malaria.....	443	26	14	6	4	1	18	2	1	1	1	1	1	1
Diphtheria.....	468	10	6	1	1	1	15	2	1	1	2	2	2	1
Scarlet fever.....	253	64	40	12	4	3	124	3	1	3	3	3	4	5
Whooping cough.....	269	36	31	6	3	3	80	7	1	1	6	4	4	7
Polio.....	101	41	4	1	1	1	46	1	1	3	6	4	3	7
Typhoid fever.....	131	63	3	1	1	1	68	3	1	1	4	7	4	9
Malaria.....	14	6	3	1	1	1	13	2	2	2	1	1	1	1
Diphtheria.....	128	3	1	1	1	1	6	2	7	3	1	10	3	4
Scarlet fever.....	128	3	1	1	1	1	30	11	7	3	18	10	3	4
Whooping cough.....	53	3	2	1	1	1	16	5	1	3	13	8	7	2
Polio.....	4,786	117	60	34	14	14	239	43	57	270	527	594	567	568
Typhoid fever.....	4,472	91	43	22	15	13	188	46	109	514	680	656	568	467
Malaria.....	38	1	1	1	1	1	3	1	1	1	4	3	3	3
Diphtheria.....	40	1	1	1	1	1	4	1	1	1	6	3	7	1
Scarlet fever.....	294	81	34	10	10	11	192	41	13	6	13	4	3	3
Whooping cough.....	245	70	27	17	8	8	166	36	11	11	3	3	3	3

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Off. Doc.

Cause of Death.	All ages.	Under 1	1	2	3	4	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39
Locomotor ataxia,	M. 119											2	4	8
F. 61												1	2	6
Other diseases of spinal cord,	M. 128	14	4	1	3	3	25	2	5	6	2	2	5	2
F. 136		11	6	3	1	1	23	2	4	4	3	3	5	7
Apoplexy,	M. 2,670	83	9	8	5	2	83	4	9	12	11	25	23	53
F. 2,578	39	11	6	3	5	3	59	2	9	6	8	9	13	38
Softening of brain,	M. 115											1	2	1
F. 108												2	3	1
Paralysis,	M. 511	3	4			2	9	3	1	3	5	9	5	11
F. 550	3	3	1			2	9	1	2	4	3	3	11	41
General paralysis of insane,	M. 292												5	9
F. 129													2	6
Other forms of mental disease,	M. 112												8	9
F. 123													7	11
Other diseases of brain,	M. 128	27	6	3	3	1	40	9	5	7	6	6	6	16
F. 102	12	3	2	1	2	1	13	8	8	3	5	7	10	11
Epilepsy,	M. 176	11	3										11	15
F. 136	3	4				1	9	2	2	10	13	11	12	1
Convulsions,	M. 1,046	860	116	24	11	4	1,015	14	2	1	3	2	3	1
F. 755	600	59	16	7	5	1	717	9	1	5	4	7	5	1
Tetanus,	M. 107	29	1	1	1	1	33	7	16	9	7	4	6	8
F. 38	14						15	3	5	1	2	2	3	1
Other diseases of nervous system,	M. 140	23	3	4	1	2	33	5	8	12	9	9	2	3
F. 150	18	7	2	2	3	1	31	10	7	11	4	4	5	6
III. Diseases of circulatory system,	10,687	225	30	21	13	12	301	137	163	198	192	241	316	373
Males,	5,600	129	15	6	5	6	164	67	45	96	91	113	150	212
Females,	5,087	96	12	15	8	6	137	70	97	103	101	123	166	160
Pericarditis,	M. 46	1	1	1	1	1	3	2	2	3	1	1	3	1
F. 51	1	1					2	2	2	1	2	1	1	1
Endocarditis,	M. 225	6	2	2	1	1	5	8	8	3	5	5	13	13
F. 221	2	1		1		6	4	7	14	5	8	30	10	8
Heart disease,	M. 4,418	79	11	5	5	1	101	47	53	69	82	109	150	166
F. 4,115	65	8	9	8	8	9	59	79	83	88	97	139	189	236
Angina pectoris,	M. 235							1	3	5	5	1	3	15
F. 174									2	3	5	3	4	9
Diseases of arteries,	M. 447		1				1							13
F. 336		3				3	3			2	1	2	6	1
Embolism and thrombosis,	M. 79	4				4	4	2	1	2	2	2	3	5
F. 100	3		1			4				2	1	7	9	6
Diseases of veins,	M. 9											1		
F. 23													1	

Diseases of tubes,	(M.)	112	6	1	1	1	1	1	10	14	24	23	2
Other diseases of genito-urinary system,	(F.)	234	1						1	6	1	1	4
VII. Childbirth,	(F.)	26											
Puerperal septicaemia,	(F.)	1,313								240	303	247	220
Puerperal convulsions,	(F.)	475								126	122	88	80
Other causes incident to childbirth,	(F.)	260								35	64	43	34
VIII. Diseases of skin,	(F.)	478								29	117	119	106
Other causes incident to childbirth,	(F.)	508								7	12	14	10
Males,	(M.)	125	13	5	1	4	148	7	2	1	2	9	6
Females,	(F.)	61	9	3	2	1	74	5	1	1	3	5	4
Gangrene,	(M.)	240	64	4	2	1	74	2	1	3	1	1	1
Females,	(F.)	136	5	1	2		8	1				1	1
Carbuncle,	(M.)	128	1	2			3					1	1
Females,	(F.)	20	2				5					1	1
Abscess,	(M.)	16	5				6					1	1
Females,	(F.)	60	22	4	1	1	28	3	1	2		3	4
Other diseases of skin,	(M.)	43	31	1	1	1	37	2		1		1	1
Females,	(F.)	52	32	4			36					1	1
IX. Diseases of locomotor system,	(M.)	50	27	1			29					1	2
Males,	(M.)	204	53	23	11	3	93	14	10	12	7	8	2
Females,	(F.)	123	33	10	7	2	53	9	7	10	6	5	4
Diseases of bones,	(M.)	81	20	13	4		40	5	3	2	1	3	2
Females,	(F.)	106	31	10	7	2	51	8	6	2	6	4	2
Diseases of joints,	(M.)	69	20	13	4		39	5	3	1		3	2
Females,	(F.)	7	1				1	1					
Other diseases of locomotor system,	(M.)	10	1				1		1	2			
Females,	(F.)	9								1			
X. Malformations,	(M.)	1,572	1,500	39	6	1	1,554	5	4	4	1	2	
Males,	(M.)	908	861	24	4	5	897	4	1	3	1	1	
Females,	(F.)	664	639	15	2	1	657	1	3			1	
Hydrocephalus,	(M.)	95	71	12	1	3	89	3		1		1	
Females,	(F.)	50	40	9			49						
Congenital malformation of heart (cyanosis),	(M.)	599	585	8	1	2	586	1	1	1		1	
Females,	(F.)	440	430	4	2	1	437	1	1				
Other congenital malformations,	(M.)	214	205	4	2	1	212				1		
Females,	(F.)	174	169	3			171		1	1			
XI. Early Infancy,	(M.)	5,518	5,518				5,518						
Males,	(M.)	3,104	3,104				3,104						
Females,	(F.)	2,414	2,414				2,414						
Premature birth,	(M.)	1,374	1,374				1,374						
Females,	(F.)	1,214	1,214				1,214						
Congenital debility,	(M.)	1,520	1,520				1,520						
Females,	(F.)	1,290	1,290				1,290						
XII. Old age,	(M.)	1,418	1,418				1,418						
Males,	(M.)	83	83				83						
Females,	(F.)	57	57				57						
XIII. Violence,	(M.)	19,100	840	200	177	157	1,486	338	261	645	1,043	849	891
Males,	(M.)	8,278	538	105	114	83	886	227	307	551	944	772	811
Females,	(F.)	1,572	322	95	63	74	600	111	54	94	115	77	80

TABLE 2.—Continued.

Cause of Death.	All ages.	Un- der 1	1	2	3	4	Un- der 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39
Suicide,	605								3	17	43	44	58	70
Fractures and dislocations,	175								4	21	33	22	24	23
Burns and scalds,	203	3	1	1	1	1	6	6	7	9	2	42	26	31
Heat and sunstroke,	382	2	2	1	36	17	182	24	8	14	26	23	1	1
Cold and freezing,	465	23	41	65	46	29	172	59	17	32	23	25	21	15
Lightning,	143	15	43	39	4	1	47	1	1	10	7	11	8	8
Drowning,	51	25	1	1	1	1	26	1	1	1	1	1	1	2
Inhalation of poisonous gases,	20	1	1	1	1	1	2	1	1	1	1	1	1	2
Other accidental poisonings,	39	1	1	1	1	1	1	1	1	1	1	1	1	1
Accidental gunshot wounds,	135	1	1	1	1	1	4	1	4	21	23	29	31	19
Injuries by machinery,	165	2	1	1	1	1	4	1	1	1	1	1	1	2
Injuries in mines and quarries,	991	1	1	1	1	1	1	2	9	103	149	179	143	146
Railroad accidents and injuries,	2,265	1	1	1	1	1	1	1	35	151	263	333	229	265
Injuries by vehicles and horses,	123	1	3	2	4	4	23	11	11	9	11	6	9	9
Suffocation,	23	1	4	2	5	1	13	18	15	13	12	18	16	20
Other accidental injuries,	76	42	4	2	2	1	46	2	3	1	1	6	3	8
Injuries of birth,	29	23	19	15	9	2	23	3	1	1	1	1	1	1
Homicide,	1,370	18	13	4	10	6	70	35	69	95	148	130	121	133
XIV. Ill-defined diseases,	373	19	15	4	5	4	54	15	9	6	17	7	13	11
Males,	366	200	200	200	200	200	200	200	200	200	200	200	200	200
Females,	75	4	4	4	4	4	4	4	4	4	4	4	4	4
Droopy,	3,147	1,703	313	50	10	9	1,990	17	7	16	17	29	32	56
	1,715	927	110	24	5	4	1,070	4	2	5	13	15	23	39
	1,432	776	108	26	5	5	980	13	5	11	12	14	9	17
	104	1	4	3	1	1	8	2	1	1	1	1	1	2
	103	3					4	3		2		3	3	2

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TABLE 2.—Continued.

Cause of Death.	Cause of Death.												95 & over.	90 to 94.	85 to 89.	80 to 84.	75 to 79.	70 to 74.	65 to 69.	60 to 64.	55 to 59.	50 to 54.	45 to 49.	40 to 44.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
All causes,	4,199	4,457	4,569	4,911	5,571	6,098	6,130	5,603	3,861	1,973	639	154	333																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

TABLE 2.—Continued.

Cause of Death.	40 to 44		45 to 49		50 to 54		55 to 59		60 to 64		65 to 69		70 to 74		75 to 79		80 to 84		85 to 89		90 to 94		95 & over.		Un- known.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Other epidemic diseases.																									
Septicæmia.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Tuberculosis of lungs.	10	7	10	3	10	3	6	3	7	2	7	6	7	1	1	2	4	1							
Tuberculosis of larynx.	448	373	326	256	326	256	189	139	189	139	102	61	102	61	51	15	15	6						16	
Tuberculosis of larynx.	284	244	147	148	147	148	130	104	130	104	92	67	92	67	18	18	5	2						9	
Tuberculous meningitis.	6	2	7	5	7	5	2	1	1	1	1	1	1	1	1	1									
Abdominal tuberculosis.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Pott's disease.	1	2	1	2	1	2	3	13	3	13	5	1			2		3	1						3	
Tuberculous abscess.	27	12	13	9	13	9	4	7	4	7	6	2			1									1	
White swelling.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Tuberculosis of other organs.	2	5					2	2			1	1	1	1	2										
General tuberculosis.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Scrofula.	8	4	3	2	3	2	3	1	3	1	4	1	4	1	1										
Veneral diseases.	2	10	4	8	4	8	2	2	2	2	3	1	3	1	1										
Cancer of mouth.	2	3	4				3	2	2	2	1	1	1	1	1										
Cancer of stomach and liver.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Cancer of intestines.	39	61	89	107	89	107	110	104	110	104	102	102	102	102	51	23	23	4						1	
Cancer of female genital organs.	36	74	105	108	105	108	127	145	127	145	115	115	115	115	77	34	34	5						2	
Cancer of breast.	20	27	30	33	30	33	43	33	43	33	33	33	33	33	19	9	9	3						3	
Cancer of skin.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Cancer of other unspecified organs.	44	104	96	70	96	70	70	70	70	70	51	51	41	41	23	9	9	4						1	
Tumors.	32	56	13	54	13	54	15	15	15	15	49	49	32	32	27	17	17	1						1	
	3	11	3	4	3	4	3	3	3	3	7	7	8	8	6		4	1							
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
	23	26	21	48	21	48	46	55	46	55	33	33	33	33	35	15	15	8						5	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
	35	43	43	67	43	67	58	60	58	60	50	50	50	50	35	13	13	6						1	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
	1	1	1	2	1	2	3	3	3	3	1	1	1	1	6		4	1							

Rheumatism,	7	9	15	20	20	12	15	16	8	2	1	1	3
Diabetes,	16	12	16	22	18	19	35	37	16	4	1	1	2
Males,	12	30	34	26	33	42	26	32	10	3	1	1	1
Females,	11	29	40	59	59	53	43	52	6	1	1	1	1
Anemia, leukemia,	7	15	11	17	10	8	8	6	3	1	1	1	1
Alcoholism,	53	50	31	33	30	11	7	4	1	2	1	1	1
Chronic poisonings,	9	10	4	3	2	2	2	2	1	1	1	1	1
Males,	2	6	6	3	3	2	2	2	1	1	1	1	1
Females,	1	4	2	1	2	2	1	1	1	1	1	1	1
Other general diseases,	1	12	11	8	6	4	7	2	3	1	1	1	1
II. Diseases of nervous system,	311	419	510	690	884	1,076	1,179	1,152	757	384	108	17	27
Males,	182	223	275	377	486	560	606	579	340	151	43	5	17
Females,	129	196	235	313	398	516	573	573	417	213	61	12	10
Encephalitis,	1	1	1	2	2	1	2	2	1	1	1	1	1
Meningitis,	1	13	7	3	4	5	8	2	1	1	1	1	1
Males,	9	9	9	6	5	5	5	2	1	1	1	1	1
Females,	7	7	15	21	18	13	10	6	3	1	1	1	1
Locomotor ataxia,	5	8	3	5	3	8	7	4	2	1	1	1	1
Other diseases of spinal cord,	7	9	9	16	20	22	29	20	5	3	1	1	1
Apoplexy,	10	5	8	7	18	16	15	15	7	1	1	1	1
Males,	64	103	149	240	331	381	359	359	244	111	27	4	9
Females,	54	100	127	220	345	386	387	387	290	144	42	7	6
Softening of brain,	2	6	6	13	6	9	25	22	8	9	2	1	1
Males,	1	2	5	6	7	10	22	24	17	8	1	1	1
Females,	11	10	22	31	55	67	92	89	55	24	8	2	2
Paralysis,	10	25	23	36	46	75	90	98	66	44	11	3	1
General paralysis of insane,	31	33	27	17	24	30	27	17	14	1	1	1	1
Males,	9	12	8	7	17	13	15	21	13	7	2	1	1
Females,	8	6	13	10	6	14	9	9	7	2	1	1	1
Other forms of mental disease,	9	13	23	10	12	15	15	15	7	8	1	2	1
Other diseases of brain,	15	7	7	4	6	6	6	5	8	1	1	1	1
Males,	8	5	2	6	4	7	5	8	2	2	2	1	1
Females,	17	15	9	10	5	2	6	3	1	1	1	1	1
Epilepsy,	5	16	16	6	4	4	1	3	3	1	1	1	1
Males,	1	1	1	1	2	2	1	1	1	1	1	1	1
Females,	1	1	1	1	2	2	2	2	2	2	2	2	2
Convulsions,	2	4	2	4	4	2	2	2	1	1	1	1	1
Tetanus,	2	6	2	4	4	2	2	2	1	1	1	1	1
Males,	3	1	4	4	4	2	2	2	1	1	1	1	1
Females,	3	5	8	8	7	9	4	5	6	3	1	1	1
Other diseases of nervous system,	6	4	7	8	6	12	8	10	6	1	1	1	1
III. Diseases of circulatory system,	477	552	681	821	1,133	1,341	1,354	1,192	732	339	96	20	24
Males,	253	299	390	432	565	750	685	601	355	141	38	9	13
Females,	224	253	291	389	498	591	632	591	377	198	58	11	11
Pericarditis,	2	2	2	4	7	8	4	2	1	1	1	1	1
Males,	2	2	5	5	10	2	8	2	7	5	2	2	2
Females,	1	17	15	22	20	22	23	15	2	1	1	1	1
Endocarditis,	8	11	14	13	17	13	21	25	20	12	1	1	1

Other diseases of respiratory system.	M.	5	19	13	12	17	27	11	2	1	4	5	1	323	160	50	17	15
W. Diseases of digestive system.	F.	213	379	402	413	473	453	515	438	323	179	142	2	72	30	5	6	9
Males.		160	204	211	251	248	248	313	248	175	257	183	257	183	30	13	9	
Females.		147	175	191	191	227	235	302	302	1	1	1	1	1				
Diseases of mouth.	M.	1		1	1													
Tonsillitis.	F.	2	2	1	1					1								
Other diseases of pharynx.	M.	1	2	1														
Ulcer of stomach.	F.	1	1	1	3	3	1	4										
Gastritis.	M.	8	12	6	6	7	14	8	1	3	2							
Gastritis.	F.	9	10	5	5	5	10	5	1	5	1							
Other diseases of stomach.	M.	12	17	19	20	24	23	23	26	24	11	4	2	2	2	1		
Dentition.	F.	10	11	16	15	30	27	46	43	44	26	11	4	2	4	2	1	
Diarrhea and enteritis.	M.	7	6	8	13	14	12	7	15	7	6	1	2	1	2	1		
Hernia.	F.	2	3	6	11	10	10	20	19	25	6	1	2	1	2	1		
Obstruction of intestines.	M.	12	24	24	11	32	31	51	60	56	30	10	1	3	10	1		
Other diseases of intestines.	F.	16	22	39	39	51	62	87	89	56	42	13	3	1	13	3		
Acute yellow atrophy of liver.	M.	4	4	9	4	16	9	10	15	6	1	1			1			
Hydatid tumor of liver.	F.	6	12	7	18	23	13	24	18	8	1	1			1			
Cirrhosis of liver.	M.	13	19	15	19	11	13	21	15	11	1	1			1			
Biliary calculi.	F.	12	21	23	8	19	26	23	14	19	4	3			3			
Other diseases of liver.	M.	3	2	5	6	11	3	8	2	6	2	1			2			
Diseases of spleen.	F.	4	3	4	2	5	3	3	6	6	3	1			2			
Peritonitis.	M.	1	1	3	1	1	1	1	2	1	2	1			1			
Appendicitis.	F.	1	1	1	1	1	1	1	1	1	2	1			1			
Other diseases of digestive system.	M.	11	13	11	14	12	7	4	2	2	2	1			2			
VI. Diseases of genito-urinary system.	F.	25	21	12	8	5	6	6	3	2	1	2			1			
Males.		17	13	24	7	8	9	4	4	2	1	2			1			
Females.		11	9	11	6	4	2	2	1	1	1	1			1			
Acute nephritis.	M.	1	1	1	1	3	2	2	1	1	1	1			1			
Chronic nephritis.	F.	403	448	545	519	710	789	806	682	421	178	48	1	1	9	12		
Other diseases of genito-urinary system.	M.	168	215	301	370	383	456	431	423	260	102	31	491	4	3	4		
Males.		235	233	244	249	327	333	314	259	161	76	17	5	4	5	4		
Females.		17	17	12	24	16	18	15	12	6	2	1	1	1	1	1		
Acute nephritis.	M.	29	20	27	21	15	13	17	15	8	5	5	5	5	5	5		

TABLE 3.
Deaths from all causes for incorporated municipalities over 8,000 population and for the rural sections of all counties by age periods

	All ages.	AGE.											
		Under 1	1	2	3	4	Under 5	5-9	10-14	15-19	20-24	25-29	30-34
Total entire State.	114,435	27,908	6,125	2,395	1,463	1,060	38,951	2,916	1,897	3,403	4,744	4,779	4,562
Males.	62,642	15,795	3,185	1,232	721	517	21,500	1,497	1,014	1,849	2,784	2,761	2,622
Females.	51,793	12,113	2,940	1,113	742	543	17,451	1,419	883	1,553	1,960	2,018	1,940
Total Cities and Boroughs over 8,000 Population.	58,915	13,915	3,284	1,295	775	551	19,380	1,469	953	1,738	2,753	2,802	2,738
Males.	32,095	7,821	1,718	713	365	263	10,880	773	517	956	1,553	1,611	1,584
Females.	26,913	6,094	1,566	582	410	288	8,500	691	435	832	1,200	1,191	1,154
Allegheny.	2,602	631	169	64	39	26	929	82	43	90	155	155	138
Males.	1,481	365	81	44	16	13	519	48	23	44	96	89	86
Females.	1,121	266	88	20	23	13	410	34	25	46	59	66	53
Allentown.	1,680	168	34	13	10	3	278	16	16	20	37	33	20
Males.	333	93	14	7	4	1	119	10	9	6	20	17	10
Females.	343	75	20	6	6	2	109	6	7	14	17	16	10
Altoona.	712	165	35	19	10	7	229	19	13	26	41	32	35
Males.	403	100	21	9	3	3	133	8	4	17	26	25	21
Females.	309	65	14	10	7	4	96	11	9	9	15	7	14
Beaver Falls.	151	27	7	2	1	1	37	6	3	5	7	6	6
Males.	81	14	3	2	1	1	19	2	1	4	5	2	3
Females.	70	13	4	1	1	1	18	4	2	1	2	4	3
Braddock.	443	165	51	17	8	11	252	18	9	13	24	27	18
Males.	271	105	21	10	4	7	102	5	2	8	17	18	9
Females.	172	60	27	7	4	4	150	13	7	5	7	9	9
Bradford.	296	29	8	2	2	3	41	10	2	3	5	12	7
Males.	121	20	3	2	2	2	23	8	2	2	4	9	3
Females.	55	9	1	1	1	1	18	2	1	1	1	3	4
Butler.	270	57	17	9	5	3	82	7	7	11	17	15	15
Males.	119	30	11	5	1	2	49	3	2	5	11	9	7
Females.	151	27	6	4	4	2	43	4	5	6	6	6	8
Carbonada.	297	82	19	8	10	1	120	13	8	10	16	9	17
Males.	146	40	5	3	3	1	61	8	4	4	10	7	9
Females.	151	42	14	5	7	1	69	5	4	6	6	2	8
Total.	139	24	3	1	3	1	32	2	2	3	7	2	3
Males.	67	16	3	1	1	1	17	1	1	2	4	2	2
Females.	72	8	1	2	2	1	15	1	1	2	3	2	2
Chambersburg.	170	39	6	1	1	1	40	3	1	1	7	4	5
Males.	84	14	2	1	2	1	19	1	1	3	4	2	2
Females.	86	16	4	1	2	1	21	2	1	3	3	1	3
Chester.	391	129	45	16	12	6	218	15	13	24	35	28	33
Males.	315	66	25	10	8	3	131	11	7	13	21	15	14
Females.	276	63	20	6	4	3	96	4	6	11	14	13	19

TABLE 3.—Continued.

	All ages.	AGE.										Under 5	5-9	10-14	15-19	20-24	25-29	30-34
		Under 1	1	2	3	4	5	6	7	8	9							
Columbia,	156	50	7	4	2	.....	63	8	1	1	1	.....	8	1	1	1	2	5
Males,	94	29	4	1	.....	29	3	1	1	1	1	.....	2	1	1	1	2	3
Females,	62	21	3	3	.....	34	3	.....	.....	.....	.....	.....	6	.....	.....	.....	2	2
Danville,	115	19	1	1	2	.....	23	1	1	1	1	.....	2	1	1	1	1	4
Males,	58	15	1	1	.....	17	1	.....	.....	.....	.....	.....	2	1	1	1	2	2
Females,	57	4	.....	.....	2	.....	6	.....	.....	.....	.....	.....	4	2	2	2	2	2
DuBois,	155	47	8	4	3	6	68	8	4	4	3	.....	8	4	3	7	10	3
Males,	89	22	2	4	1	1	32	2	4	1	3	.....	7	1	3	4	6	2
Females,	66	25	6	.....	2	3	36	6	.....	.....	.....	.....	1	3	.....	3	4	1
Dunmore,	258	95	19	5	4	1	124	13	1	2	7	.....	13	2	7	4	8	9
Males,	142	51	17	1	2	1	72	8	1	.....	.....	.....	8	1	4	4	3	7
Females,	116	44	2	4	2	.....	52	5	.....	.....	.....	.....	5	.....	3	4	5	2
Duquesne,	267	104	24	16	17	6	177	8	4	4	6	.....	8	4	6	9	6	6
Males,	154	61	20	6	14	3	104	5	3	3	5	.....	5	3	3	5	3	4
Females,	112	43	14	10	3	3	73	3	1	1	1	.....	3	1	3	4	3	2
Easton,	146	47	18	4	4	.....	116	12	6	5	11	.....	12	6	11	18	13	17
Males,	88	6	1	.....	4	.....	59	1	.....	.....	.....	.....	10	3	8	9	10	8
Females,	58	39	12	.....	.....	.....	57	11	.....	.....	.....	.....	2	.....	3	9	3	7
Erie,	867	204	36	13	.....	.....	257	28	9	9	23	.....	28	9	23	32	39	23
Males,	505	129	18	6	.....	.....	157	15	6	6	13	.....	15	6	13	18	19	12
Females,	362	75	10	9	1	3	98	13	3	3	10	.....	13	3	11	15	20	11
Harrisburg,	827	158	34	15	15	10	232	34	10	15	19	.....	34	10	15	20	26	16
Males,	441	87	15	9	2	5	118	8	9	9	9	.....	9	9	9	10	13	11
Females,	386	71	19	6	13	5	114	2	6	6	10	.....	2	6	10	10	13	21
Hazleton,	338	71	19	6	13	5	114	2	6	6	10	.....	2	6	10	10	13	21
Males,	214	61	9	3	2	1	76	5	5	5	6	.....	4	4	4	4	8	12
Females,	123	34	4	1	.....	.....	39	1	1	1	4	.....	1	1	2	2	6	7
Homestead,	91	27	5	2	2	1	37	2	1	1	2	.....	2	1	2	2	2	5
Males,	298	133	31	6	8	2	190	10	3	3	7	.....	10	3	7	7	11	16
Females,	161	75	22	2	2	1	102	3	.....	.....	.....	.....	3	.....	4	4	1	9
Johnstown,	137	58	9	4	6	1	78	23	14	17	17	.....	23	14	17	17	55	40
Males,	730	183	41	16	11	10	261	19	11	11	14	.....	19	11	14	14	44	27
Females,	650	89	21	7	3	5	127	14	10	10	10	.....	14	10	10	10	22	13
Lancaster,	609	122	21	12	6	.....	153	23	9	9	9	.....	23	9	9	9	24	23
Males,	315	64	11	12	6	.....	81	15	5	5	5	.....	15	5	5	5	12	12
Females,	298	58	10	8	3	2	72	8	4	4	4	.....	8	4	4	4	12	11
Lebanon,	305	65	11	4	6	4	91	18	7	7	11	.....	18	7	11	13	10	8
Males,	175	34	6	2	2	2	48	7	2	2	3	.....	7	2	3	7	5	5
Females,	133	31	5	2	3	2	43	11	5	5	8	.....	11	5	8	6	5	3
McKeesport,	865	249	48	17	9	11	334	27	20	20	34	.....	27	20	20	34	62	45
Males,	536	140	20	8	5	5	178	15	10	10	24	.....	15	10	10	24	50	28
Females,	329	109	28	9	4	6	156	12	10	10	10	.....	12	10	10	10	13	17

Mahanoy City,	302	116	21	14	8	7	166	5	4	6	8	8	7
Total,	172	65	14	6	4	4	92	2	3	5	5	3	2
Males,	130	51	7	8	4	3	73	3	1	7	5	3	4
Females,	42	14	7	1	1	1	19	1	2	2	2	4	4
Meadville,	166	15	3	1	1	1	21	1	3	3	4	3	1
Total,	81	5	1	1	1	1	6	1	1	1	1	1	3
Males,	75	10	1	1	1	1	15	1	1	4	1	1	3
Females,	6	1	1	1	1	1	1	1	1	1	1	1	6
Mount Carmel,	208	83	21	6	4	3	117	9	2	5	6	6	6
Total,	115	53	9	3	1	2	67	1	1	3	1	2	4
Males,	93	31	13	3	3	1	50	8	1	3	5	4	6
Females,	251	112	30	6	4	6	157	3	1	7	7	6	8
Nanticoke,	134	62	14	4	3	2	84	2	2	3	2	2	5
Total,	117	50	16	2	3	2	78	1	1	4	4	4	1
Males,	510	185	39	3	3	4	181	10	5	19	40	25	33
Females,	380	173	17	9	4	1	176	6	3	10	13	13	15
New Castle,	609	77	14	6	10	1	111	11	6	12	29	19	21
Total,	333	44	11	3	6	1	47	3	4	8	13	11	9
Males,	281	33	5	4	4	1	44	3	4	8	12	11	12
Females,	176	44	6	3	1	2	55	4	5	1	6	7	7
Oil City,	93	24	4	1	1	2	31	3	3	1	3	1	2
Total,	83	20	2	1	1	1	21	1	1	1	1	1	5
Males,	57,768	6,010	1,515	555	337	237	8,694	643	430	759	1,136	1,243	1,337
Females,	14,548	3,390	783	323	166	109	4,771	346	225	372	546	674	745
Philadelphia,	13,220	2,630	722	262	171	128	3,913	297	205	387	580	592	592
Phoenixville,	191	65	13	2	3	2	63	2	1	5	8	10	12
Total,	113	36	6	2	2	2	44	2	1	4	6	6	9
Males,	78	29	7	2	3	2	38	2	1	4	5	6	9
Females,	7,475	1,923	520	193	109	96	2,890	306	116	311	440	443	393
Pittsburg,	4,273	1,063	281	108	57	43	1,543	107	63	168	229	239	239
Total,	3,267	809	239	84	52	43	1,183	92	52	122	153	153	153
Males,	172	51	14	4	3	2	122	5	4	9	13	17	18
Females,	115	41	6	5	3	3	57	1	1	2	4	8	9
Plymouth,	250	83	33	10	5	4	135	4	4	6	5	4	4
Total,	139	44	16	6	2	2	81	4	3	4	4	3	7
Males,	112	39	17	4	3	3	66	2	2	3	2	1	2
Females,	228	41	7	2	2	1	53	4	3	15	9	6	5
Pottstown,	137	23	6	2	1	1	38	1	1	8	6	3	3
Total,	91	13	1	1	1	1	15	3	1	7	3	3	2
Males,	317	49	11	3	1	2	66	5	5	22	24	16	16
Females,	191	30	6	1	1	1	39	2	3	7	17	15	10
Pottsville,	1,226	344	31	22	11	9	417	25	19	43	76	51	50
Total,	723	190	17	16	2	2	239	15	11	19	43	31	30
Males,	1,993	484	114	76	26	28	798	43	30	83	98	73	73
Females,	1,993	484	114	76	26	28	798	43	30	83	98	73	73
Scranton,	1,856	222	48	32	13	10	325	37	16	23	42	32	30
Total,	290	85	15	6	3	3	111	12	8	4	11	6	13
Males,	154	51	4	3	1	1	60	8	4	4	3	3	6
Females,	136	34	11	3	1	2	51	4	2	4	8	3	7
Shamokin,	222	58	4	2	2	2	65	4	4	9	9	19	14
Total,	129	30	4	1	1	2	36	2	4	5	7	12	11
Males,	93	23	1	1	1	2	23	2	3	4	3	7	7
Females,	93	23	1	1	1	2	23	2	3	4	3	7	7

	All ages.	AGE.										25-29	30-34
		Under 1	1	2	3	4	Under 5	5-9	10-14	15-19	20-24		
Shenandoah,	558	263	55	26	13	7	383	11	3	10	14	13	15
Males,	292	146	27	11	6	4	195	6	2	9	12	8	9
Females,	236	117	28	14	7	3	188	5	1	1	2	5	6
South Bethlehem,	287	115	14	4	3	1	122	5	1	5	3	16	5
Males,	154	60	5	3	2	1	71	4	1	2	4	11	3
Females,	133	55	9	1	1	0	51	1	0	3	0	5	2
Steelton,	231	85	13	7	5	1	115	11	5	13	20	16	17
Males,	143	48	7	4	3	1	68	6	3	6	16	9	10
Females,	108	37	6	3	2	0	47	5	2	7	4	7	7
Sunbury,	166	33	8	2	3	0	46	4	2	5	10	7	3
Males,	96	16	5	1	1	0	23	1	1	3	7	3	2
Females,	70	17	3	1	2	0	23	3	1	2	3	4	4
Titusville,	114	16	1	0	1	1	19	1	3	2	3	4	4
Males,	53	9	0	0	0	0	9	1	1	2	2	2	2
Females,	61	7	1	1	1	1	10	0	2	0	1	2	2
Warren,	125	22	2	1	1	2	27	2	3	4	5	5	7
Males,	65	10	2	1	1	2	12	2	3	4	6	3	2
Females,	219	33	4	2	1	0	15	0	0	0	12	12	9
West Chester,	104	19	1	1	1	1	23	4	1	2	3	6	2
Males,	115	14	3	1	1	1	19	4	1	2	3	3	2
Females,	899	194	42	9	10	10	314	18	26	33	39	48	52
Wilkes-Barre,	541	112	26	8	6	3	155	11	19	22	26	37	35
Males,	358	82	16	1	3	7	109	7	7	11	13	11	17
Females,	243	44	15	4	4	4	67	9	2	5	12	14	13
Wilkesburg,	125	26	9	6	3	3	38	4	1	3	6	11	3
Males,	118	13	6	4	2	1	29	5	1	1	3	5	8
Females,	489	73	14	9	2	6	104	7	11	15	23	25	19
Williamsport,	248	46	9	5	3	3	62	4	5	6	8	12	7
Males,	241	28	5	4	2	2	42	3	6	7	15	13	12
Females,	133	12	10	5	2	3	164	12	7	17	23	22	19
York,	277	59	7	3	2	2	91	7	1	8	13	16	13
Males,	139	29	5	2	1	1	73	5	1	9	10	6	6
Females,	55,517	2,841	1,100	635	524	524	19,131	1,447	945	1,614	1,991	1,977	1,881
Total rural, including boroughs, less than 8,000 population.	30,637	7,974	1,467	825	325	325	13,131	1,771	945	1,241	1,241	1,160	1,088
Adams (counties),	24,880	6,019	1,374	531	332	253	8,531	728	449	728	750	827	792
Males,	13,993	3,241	685	254	168	168	5,511	411	254	411	411	411	371
Females,	20,887	2,778	689	277	164	86	13,620	317	695	803	839	816	721
Allegheny,	5,397	1,513	395	141	62	62	2,195	144	112	164	264	262	230
Males,	3,057	854	192	89	43	29	1,198	73	50	88	170	160	142
Females,	2,340	193	61	51	19	33	997	71	62	76	94	102	88

Armstrong,	762	183	36	21	7	8	255	29	17	21	37	29	31
Males,	437	109	20	13	3	4	140	16	8	10	15	19	19
Females,	325	74	16	8	4	4	103	13	9	11	12	10	12
Beaver,	791	154	34	15	6	12	231	14	9	33	53	45	35
Males,	457	92	20	7	3	8	130	8	7	20	40	28	18
Females,	334	62	14	8	3	4	101	6	2	13	13	17	17
Bedford,	499	93	22	12	3	6	136	17	14	18	19	16	11
Males,	271	63	11	6	3	4	83	11	4	10	10	8	1
Females,	228	30	11	4	.....	.....	47	6	10	8	9	8	10
Berka,	1,242	288	36	18	11	12	343	26	20	26	40	34	36
Males,	654	149	15	11	6	6	189	14	17	10	22	17	20
Females,	588	139	21	5	6	6	157	11	13	16	20	17	16
Blair,	723	207	30	21	6	8	272	19	11	16	23	23	20
Males,	400	123	17	10	2	2	153	9	6	7	10	11	11
Females,	323	84	13	17	4	6	119	10	5	9	13	12	9
Bradford,	803	173	20	12	7	8	215	14	13	17	20	30	29
Males,	430	77	10	4	2	2	105	7	9	12	13	16	12
Females,	371	41	10	8	2	1	60	7	4	5	7	14	17
Bucks,	1,161	187	37	8	9	5	246	17	17	29	37	29	29
Males,	580	96	19	3	5	1	126	5	7	9	19	15	15
Females,	581	89	18	5	4	4	120	12	10	20	18	14	14
Butler,	532	114	19	9	5	2	149	14	10	12	18	16	18
Males,	292	64	8	6	4	.....	83	3	6	7	8	11	8
Females,	240	50	11	3	1	.....	67	11	4	5	10	5	10
Cambria,	1,399	541	104	40	31	20	736	67	33	52	46	49	46
Males,	736	276	62	17	17	12	334	30	21	34	30	31	30
Females,	663	265	42	23	14	8	362	37	12	18	16	18	15
Cameron,	56	33	6	1	.....	.....	40	6	3	1	5	3	.....
Males,	17	3	.....	.....	.....	.....	20	2	.....	.....	.....	.....	.....
Females,	40	16	3	1	.....	.....	20	4	.....	.....	.....	.....	.....
Carbon,	740	203	34	20	10	10	273	30	15	25	23	23	23
Males,	430	103	14	10	6	7	156	15	9	15	15	16	13
Females,	310	100	20	10	4	3	117	15	6	10	8	12	10
Centre,	571	113	21	8	9	2	151	10	13	20	13	12	12
Males,	333	73	13	8	6	2	98	7	6	9	5	5	7
Females,	238	40	8	4	3	1	53	3	7	11	8	7	5
Chester,	1,335	201	43	15	15	10	384	16	26	27	40	47	33
Males,	705	157	20	11	10	5	203	8	16	17	21	23	15
Females,	630	144	23	4	5	5	181	8	10	10	19	19	18
Clarion,	412	107	11	7	2	4	131	9	5	8	19	6	18
Males,	232	54	9	4	1	2	70	3	2	4	13	4	14
Females,	180	53	2	3	1	2	61	6	3	4	6	2	4
Clearfield,	1,002	364	61	17	15	7	484	34	13	34	24	36	34
Males,	541	206	23	10	11	4	269	16	7	16	16	16	14
Females,	461	158	32	7	4	3	215	18	6	18	8	17	20
Clinton,	233	53	18	14	4	1	103	9	4	20	23	17	14
Males,	133	34	8	6	2	1	51	2	4	12	17	9	8
Females,	100	19	9	8	2	.....	52	7	.....	8	6	8	6
Columbia,	571	120	22	9	4	6	165	10	7	11	14	17	15
Males,	306	70	8	4	5	2	89	5	3	15	7	13	8
Females,	265	50	14	5	3	4	76	5	4	4	7	4	7
Crawford,	581	57	9	3	4	2	75	16	8	17	13	9	15
Males,	311	40	3	.....	.....	.....	46	7	4	8	7	2	7
Females,	270	17	6	3	2	2	30	9	4	9	6	7	10

TABLE 3.—Continued.

	AGE.													
	All ages.	Under 1	1	2	3	4	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	
Cumberland.	604	125	15	11	2	3	157	13	10	15	11	18	14	
Males.	283	66	8	4	2	3	79	4	8	7	6	6	5	
Females.	321	61	7	7	2	3	78	9	2	8	5	12	9	
Dauphin.	842	164	32	14	12	4	226	25	12	23	24	29	30	
Males.	447	97	15	6	6	2	124	12	8	14	12	19	17	
Females.	395	67	17	9	7	3	102	13	4	14	12	10	13	
Delaware.	538	123	43	15	12	3	181	23	14	25	33	35	42	
Males.	263	59	20	8	8	3	121	10	8	13	17	15	21	
Females.	275	64	23	7	4	4	160	13	6	12	16	20	21	
Elk.	470	81	24	8	8	3	124	13	9	12	16	15	15	
Males.	246	46	13	8	4	4	86	22	9	11	19	15	15	
Females.	224	35	14	8	2	3	102	14	6	7	12	11	10	
Erie.	181	60	12	5	6	1	94	8	3	4	7	4	5	
Males.	698	71	12	6	4	4	97	9	10	14	22	22	13	
Females.	363	37	7	2	2	2	50	5	4	6	17	8	7	
Fayette.	2,397	848	192	54	49	26	1,169	62	40	71	113	104	79	
Males.	1,378	489	94	24	26	11	641	35	20	46	83	70	53	
Females.	1,018	359	98	30	23	15	528	27	20	25	30	34	27	
Forest.	73	24	3	3	1	1	28	2	1	1	1	1	1	
Males.	44	16	3	3	1	1	17	1	1	1	1	1	1	
Females.	34	8	2	1	1	1	11	1	1	1	1	1	1	
Franklin.	649	164	34	6	3	8	215	18	14	11	15	15	15	
Males.	311	99	17	1	2	4	103	3	4	4	5	9	9	
Females.	338	65	17	5	1	4	112	15	10	7	10	6	6	
Fulton.	131	22	6	4	2	4	34	1	2	4	1	4	4	
Males.	61	9	3	2	1	1	15	1	1	3	1	2	2	
Females.	70	13	3	2	1	1	19	1	1	1	1	2	2	
Greene.	362	52	14	2	4	1	73	8	8	12	17	11	8	
Males.	175	34	5	2	2	1	42	2	3	6	6	3	3	
Females.	187	18	9	2	2	2	31	6	5	6	11	8	5	
Huntingdon.	499	96	13	5	9	3	126	17	4	19	17	16	14	
Males.	276	46	8	3	4	2	63	13	3	14	10	8	11	
Females.	224	50	5	2	5	1	63	4	1	5	7	8	3	
Indiana.	793	213	62	11	9	3	238	18	10	26	26	33	27	
Males.	427	134	19	8	5	3	169	12	4	14	19	19	14	
Females.	366	79	33	3	4	6	119	6	6	12	9	14	13	
Jefferson.	851	239	62	18	8	7	334	25	18	22	33	42	26	
Males.	473	139	27	11	5	2	174	13	10	11	21	23	19	
Females.	379	110	35	7	3	5	160	12	8	11	12	19	7	
Junata.	311	32	3	15	2	1	41	7	3	9	11	6	6	
Males.	130	23	2	13	1	1	27	4	1	4	5	1	1	
Females.	91	9	1	13	1	1	14	3	2	4	6	5	5	

Lackawanna,	1,357	405	121	44	25	13	6,8	15	16	20	30	45	52
Males,	783	229	61	27	11	11	34	22	8	13	17	46	80
Females,	574	176	60	17	11	11	2,5	23	8	16	13	19	30
Lancaster,	1,484	397	52	23	8	9	404	31	27	46	37	43	83
Males,	823	174	30	14	6	5	279	16	10	23	23	27	46
Females,	661	223	22	9	2	4	125	15	17	17	14	16	37
Lawrence,	357	72	20	7	2	5	106	7	6	16	14	9	11
Males,	209	43	12	3	2	2	60	4	5	11	7	7	7
Females,	148	29	8	4	2	3	46	3	1	5	7	2	4
Lebanon,	525	122	26	13	4	7	172	19	6	18	8	11	14
Males,	326	73	17	9	1	5	106	8	4	8	3	8	10
Females,	199	49	9	4	3	2	67	11	2	10	5	3	4
Lehigh,	1,097	264	52	12	14	15	387	23	25	33	37	24	26
Males,	614	144	24	4	8	10	190	11	13	20	26	16	14
Females,	473	120	28	8	6	5	197	12	12	13	11	8	10
Luzerne,	2,178	531	107	34	14	27	1,697	83	34	63	57	83	83
Males,	1,155	285	58	14	7	14	897	42	19	39	34	56	54
Females,	1,023	246	49	20	7	13	800	41	15	24	23	27	29
Lycoming,	1,541	398	107	48	23	16	553	58	30	39	37	53	52
Males,	97	12	4	4	4	3	121	5	10	7	7	13	12
Females,	295	53	8	3	3	3	70	5	3	2	10	9	6
McKean,	246	44	4	1	1	1	51	17	8	13	20	14	13
Males,	419	80	19	6	1	5	111	16	4	6	8	10	6
Females,	229	50	9	3	1	4	67	13	4	7	12	4	7
Mercer,	190	30	10	3	1	1	44	12	4	7	12	4	7
Males,	786	159	26	14	9	7	215	18	17	16	33	29	20
Females,	416	84	14	9	4	7	118	10	6	5	22	16	9
Mifflin,	370	75	12	5	5	5	97	8	11	11	10	13	11
Males,	409	92	10	13	3	5	123	16	3	17	24	16	11
Females,	551	53	7	12	1	4	76	13	1	11	18	10	7
Monroe,	158	29	3	1	3	1	47	3	2	6	6	6	4
Males,	146	26	5	2	2	3	53	8	3	6	11	12	5
Females,	12	3	1	1	1	2	21	2	1	3	5	3	3
Montgomery,	1,512	387	72	27	18	12	416	98	27	53	50	52	45
Males,	786	174	35	14	10	4	237	37	15	30	22	21	21
Females,	726	113	37	13	8	8	179	61	12	20	19	31	24
Montour,	137	12	.....	1	1	.....	14	1	2	1	3	3	1
Males,	96	7	.....	1	1	.....	9	1	2	1	3	2	1
Females,	41	5	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....
Northampton,	1,081	287	44	23	12	9	375	30	22	37	23	25	28
Males,	695	171	25	15	6	6	223	18	9	18	15	13	18
Females,	476	116	19	8	6	3	152	12	13	19	8	12	10
Northumberland,	705	182	32	14	12	13	253	18	15	20	19	22	21
Males,	373	104	13	4	6	5	132	7	10	12	12	11	15
Females,	332	78	19	10	6	8	121	11	5	8	7	11	6
Perry,	343	51	12	4	2	3	72	6	8	10	11	6	9
Males,	188	26	7	1	2	2	38	3	5	6	6	2	2
Females,	155	25	5	3	.....	.....	34	3	3	4	5	4	7
Philadelphia,	27,768	6,000	1,515	585	337	237	8,684	943	425	769	1,126	1,242	1,277
Males,	13,286	2,836	733	283	186	138	4,631	445	225	372	526	671	715
Females,	13,283	2,890	783	283	171	138	3,991	298	235	387	598	568	562
Pike,	124	11	2	1	.....	.....	31	2	3	1	3	3	5
Males,	63	11	2	1	.....	.....	14	1	2	2	3	3	5
Females,	56	4	1	.....	.....	.....	17	1	1	1	1	.....	4

TABLE 3.—Continued.

	AGE.													
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95+	Un.
Carlisle,	3	4	4	5	6	13	8	13	11	7	9	1		1
Total,	3	4	4	5	6	13	8	13	11	7	9	1		1
Males,	1	1	1	1	3	5	3	7	6	4	3			1
Females,	2	3	3	4	3	8	5	6	5	3	6	1		1
Chambersburg,	7	10	13	7	8	13	9	9	13	11	7	2		
Total,	7	10	13	7	8	13	9	9	13	11	7	2		
Males,	4	6	6	2	2	7	3	5	6	6	1			
Females,	3	4	7	5	6	6	6	4	7	5				
Chester,	21	23	29	23	23	26	13	25	22	11	11	1	1	1
Total,	21	23	29	23	23	26	13	25	22	11	11	1	1	1
Males,	13	16	15	12	11	18	12	12	12	3	4	1		
Females,	8	7	14	11	12	8	1	13	10	8	7		1	1
Columbia,	4	6	5	5	7	8	7	13	10	6	2			
Total,	4	6	5	5	7	8	7	13	10	6	2			
Males,			3	3	3	5	4	11	7	2	1			
Females,	3	3	2	2	4	3	3	2	3	4	1			
Danville,	1	3	2	4	5	5	1	11	7	8	2			
Total,	1	3	2	4	5	5	1	11	7	8	2			
Males,	2	2	2	2	2	1	6	11	4	4	2	1		
Females,	1	4	4	2	3	4	1	10	3	4	2			
DuBois,	1	4	6	12	10	2	1	10	3	4	2			
Total,	1	4	6	12	10	2	1	10	3	4	2			
Males,														
Females,	10	14	2	3	3	2	1	3	3	2				
Dunmore,	11	11	6	3	9	9	11	11	3	5	2	1		1
Total,	11	11	6	3	9	9	11	11	3	5	2	1		1
Males,	4	11	5	4	5	1	5	3	6	3	1			
Females,	7	3	1	4	4	2	6	8	3	2	1	1		1
Duquesne,	12	7	3	5	3	5	5	3	6	1	1			
Total,	12	7	3	5	3	5	5	3	6	1	1			
Males,	9	4	2	3	2	1	1	1	3	1				
Females,	3	3	1	2	1	4	4	2	3					
Easton,	24	15	16	17	16	31	21	27	43	16	10	1	1	
Total,	24	15	16	17	16	31	21	27	43	16	10	1	1	
Males,	15	9	10	10	12	15	17	16	23	5	1			
Females,	9	6	6	7	4	16	12	11	20	11	9	1		1
Erie,	33	40	32	37	36	72	53	54	49	30	13	6	1	2
Total,	33	40	32	37	36	72	53	54	49	30	13	6	1	2
Males,	21	23	20	18	26	46	30	32	24	13	10	5		
Females,	12	17	12	14	10	26	23	22	25	17	3	1	1	2
Harrisburg,	32	33	30	41	48	54	48	48	39	24	16	4	1	3
Total,	32	33	30	41	48	54	48	48	39	24	16	4	1	3
Males,	20	19	19	24	31	37	30	31	12	4	4	1		
Females,	12	14	11	17	17	24	18	17	27	12	12	3	1	3
Hazleton,	13	10	10	11	12	10	10	10	6	5	3			
Total,	13	10	10	11	12	10	10	10	6	5	3			
Males,	8	6	6	10	8	4	4	4	1	1	1			
Females,	5	4	4	1	4	6	6	6	5	4	2			
Homestead,	13	10	9	3	8	3	9	4	1	1				
Total,	13	10	9	3	8	3	9	4	1	1				
Males,	9	5	2	2	3	4	3	1	2					
Females,	4	3	4	1	5	2	6	3						

Johnstown,	28	30	28	20	26	34	24	25	14	5	1	1	1
Males,	21	22	15	13	17	18	21	11	13	4	2	1	1
Females,	7	8	13	8	9	10	13	13	10	3	1	1	1
Lancaster,	28	22	31	25	49	36	44	41	46	31	16	4	1
Males,	8	14	18	13	24	18	21	20	27	9	6	1	1
Females,	20	8	13	12	25	18	23	21	19	22	10	3	1
Lebanon,	12	4	17	16	17	23	13	11	19	11	6	1	1
Males,	3	3	8	9	7	12	10	9	2	2	1	1	2
Females,	9	1	9	7	10	16	8	10	9	9	6	1	2
McKeesport,	56	36	41	30	16	16	20	23	17	18	2	2	2
Males,	42	29	26	24	9	13	14	13	7	7	11	1	2
Females,	14	7	15	6	7	3	6	10	10	11	3	1	2
Mahanoy City,	6	10	11	7	7	9	14	12	9	4	3	1	1
Males,	6	4	10	4	4	8	6	6	4	3	1	1	1
Females,	2	7	1	3	3	1	8	6	5	2	2	2	1
Meadville,	4	5	7	4	6	7	13	16	13	14	10	3	1
Males,	4	5	3	4	6	7	8	6	5	3	2	1	1
Females,	3	2	4	3	3	4	5	8	8	11	8	2	1
Mount Carmel,	10	4	8	6	6	5	5	5	7	7	1	1	1
Males,	8	3	5	4	4	3	3	3	4	1	1	1	1
Females,	2	1	3	2	2	2	2	2	3	6	5	5	1
Nanticoke,	7	4	6	5	10	11	7	3	3	1	1	2	1
Males,	3	3	3	3	3	3	3	3	2	3	1	1	1
Females,	4	1	3	2	7	8	4	4	2	3	1	2	3
New Castle,	23	16	17	13	22	22	19	14	26	19	3	2	1
Males,	16	9	10	7	15	9	11	9	12	8	3	1	1
Females,	7	7	7	6	7	13	8	5	14	11	1	1	1
Norristown,	31	22	35	41	39	43	43	52	45	26	11	7	4
Males,	16	14	22	26	23	22	20	32	21	13	4	1	1
Females,	15	8	13	15	16	21	23	20	24	12	7	6	3
Oil City,	9	9	4	3	3	4	13	4	16	8	1	1	1
Males,	9	9	4	3	3	4	13	4	16	8	1	1	1
Females,	0	0	0	0	0	0	0	0	0	0	0	0	0
Philadelphia,	1,333	1,318	1,370	1,350	1,328	1,453	1,467	1,354	1,157	738	417	36	4
Males,	788	761	768	750	717	735	760	699	594	286	149	34	10
Females,	595	557	602	600	669	718	707	755	649	450	268	82	21
Phoenixville,	16	3	4	9	6	7	9	5	4	2	4	1	1
Males,	11	2	4	6	5	4	5	2	3	1	4	1	1
Females,	5	1	2	3	1	3	4	3	1	1	1	1	1
Pittsburg,	404	298	330	317	273	270	241	228	163	124	53	14	2
Males,	252	201	205	193	147	177	134	103	67	52	25	6	1
Females,	142	97	125	124	126	113	107	125	96	72	28	8	2
Pittston,	18	15	12	8	11	8	14	5	6	6	1	1	5
Males,	11	12	8	4	9	6	8	2	1	2	1	1	4
Females,	7	3	4	4	2	2	6	3	4	4	1	1	1
Plymouth,	11	7	6	4	11	10	10	8	2	2	1	1	1
Males,	5	5	3	3	3	3	5	2	4	2	1	1	1
Females,	6	2	3	1	8	7	5	6	2	2	1	1	1
Pottstown,	9	8	8	11	12	12	17	16	8	17	5	2	1
Males,	7	6	5	16	15	18	9	9	7	7	2	2	1
Females,	2	2	3	5	7	4	8	7	1	10	3	1	1
Pottsville,	23	15	18	14	13	16	17	17	17	13	6	3	1
Males,	15	11	11	8	11	8	12	11	5	2	3	1	1
Females,	8	4	7	6	2	8	5	6	12	11	3	1	1

TABLE 3.—Continued.

	AGE.													Un.
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95+	
Clarion,	13	7	6	20	16	26	21	23	35	20	14	4	1	
Total,	10	5	4	11	12	15	11	19	14	12	7	2	1	
Males,	3	2	2	9	4	11	10	14	21	8	7	2	1	
Females,	19	38	32	22	30	30	49	47	39	30	22	2	1	
Clearfield,	6	22	16	14	20	20	25	24	25	15	8	2	1	
Total,	13	16	16	8	10	10	24	24	14	15	14	1	1	
Males,	10	13	20	18	19	23	29	31	3	18	7	1	1	
Females,	4	6	11	14	13	20	17	17	16	13	2	2	1	
Columbia,	18	14	26	20	28	29	45	52	46	25	19	6	1	
Total,	9	9	14	17	14	15	26	27	45	14	11	1	1	
Males,	9	9	14	17	14	15	26	27	45	14	11	1	1	
Females,	9	5	12	3	14	14	19	25	39	8	15	1	1	
Crawford,	18	12	21	22	20	52	53	67	94	30	23	13	2	
Total,	7	7	12	13	11	30	29	32	34	17	11	10	2	
Males,	11	16	9	19	25	30	63	58	35	36	12	6	1	
Females,	9	10	3	14	13	15	27	25	29	17	6	1	1	
Cumberland,	8	6	13	13	12	15	36	35	61	35	10	6	2	
Total,	23	29	30	43	33	63	53	65	61	35	10	6	2	
Males,	24	16	23	26	10	34	25	33	27	14	2	2	2	
Females,	9	13	7	17	23	29	28	32	34	22	8	4	1	
Dauphin,	30	35	36	40	45	59	60	84	47	39	23	10	6	
Total,	23	22	19	23	26	32	23	40	18	18	14	3	3	
Males,	7	13	17	17	19	27	22	44	29	21	14	7	3	
Females,	15	14	16	21	19	14	21	19	12	13	6	3	3	
Delaware,	8	14	7	12	14	12	11	14	6	5	3	4	4	
Total,	6	13	9	9	5	2	7	5	6	8	3	3	4	
Males,	26	30	30	36	36	47	56	63	74	62	33	15	15	
Females,	15	13	18	25	14	22	29	27	32	33	13	4	6	
Erie,	6	16	12	18	22	25	27	27	32	23	6	3	3	
Total,	114	95	71	73	70	75	71	60	86	44	27	8	2	
Males,	88	37	45	42	43	43	38	28	43	13	14	4	3	
Females,	26	18	26	31	27	32	33	32	43	31	13	4	1	
Forest,	4	4	4	2	4	3	2	4	5	7	3	1	1	
Total,	2	1	1	2	2	1	2	1	2	1	1	1	1	
Males,	2	1	1	2	2	1	2	1	2	1	1	1	1	
Females,	22	13	21	18	25	48	55	56	47	27	10	3	1	
Franklin,	7	3	8	11	18	24	29	29	32	11	4	1	1	
Total,	15	10	13	7	7	24	31	36	25	16	6	2	1	
Males,	15	10	13	7	7	24	31	36	25	16	6	2	1	
Females,	15	10	13	7	7	24	31	36	25	16	6	2	1	

Fulton,	Total,	5	4	3	6	5	7	10	11	17	5	8	1	1	1
Males,	Males,	3	1	2	1	2	3	4	6	9	3	2	1	1	1
Females,	Females,	2	3	1	5	3	4	6	5	8	2	6	1	1	1
Total,	Total,	20	3	10	12	11	18	24	27	35	30	17	2	2	2
Greene,	Males,	14	3	4	7	8	7	11	13	16	12	8	1	1	1
Females,	Females,	6	6	6	5	3	11	13	14	20	18	9	2	2	2
Total,	Total,	21	15	30	30	22	29	28	40	38	19	15	3	3	3
Huntingdon,	Males,	10	13	8	18	12	16	12	21	19	10	8	1	1	1
Females,	Females,	11	9	7	12	10	13	16	19	17	9	7	1	1	1
Total,	Total,	23	18	18	29	25	28	44	39	55	37	27	11	11	11
Indiana,	Males,	11	11	8	16	13	15	26	19	21	18	11	4	4	4
Females,	Females,	17	17	12	22	12	17	13	20	34	19	16	7	7	7
Total,	Total,	28	27	20	38	25	32	39	39	55	37	27	11	11	11
Jefferson,	Males,	16	16	13	27	17	21	44	45	44	31	18	2	2	2
Females,	Females,	13	11	7	18	12	13	22	24	21	21	6	3	3	3
Total,	Total,	29	27	20	45	29	34	66	69	65	52	24	5	5	5
Junata,	Males,	9	5	3	8	8	20	14	22	17	10	4	1	1	1
Females,	Females,	6	4	2	3	5	10	9	14	6	7	1	1	1	1
Total,	Total,	15	9	5	11	13	30	23	36	23	17	5	2	2	2
Lackawanna,	Males,	49	35	61	63	47	64	60	51	48	23	7	1	1	1
Females,	Females,	28	14	24	22	15	22	25	28	26	17	4	3	3	3
Total,	Total,	21	14	24	22	15	22	25	28	26	17	4	3	3	3
Lancaster,	Males,	39	39	49	41	65	81	107	138	129	104	56	14	14	14
Females,	Females,	26	24	25	18	36	51	60	64	60	57	24	10	10	10
Total,	Total,	10	14	10	8	14	16	19	27	28	24	9	4	4	4
Lawrence,	Males,	11	7	3	7	7	11	11	13	16	18	5	1	1	1
Females,	Females,	12	15	15	15	24	30	39	48	54	21	11	3	3	3
Total,	Total,	17	14	7	18	24	41	50	61	70	39	18	4	4	4
Lebanon,	Males,	4	8	7	12	12	11	16	16	13	15	8	1	1	1
Females,	Females,	32	39	41	41	57	67	75	70	66	52	19	3	3	3
Total,	Total,	17	23	24	25	31	37	43	43	36	30	9	1	1	1
Lehigh,	Males,	15	14	20	16	26	35	33	27	24	20	10	6	6	6
Females,	Females,	89	106	113	101	109	139	110	159	159	65	42	9	9	9
Total,	Total,	62	69	79	63	76	83	68	63	57	37	21	10	10	10
Luzerne,	Males,	27	47	31	38	33	56	62	48	28	21	10	6	6	6
Females,	Females,	17	15	24	24	24	39	41	36	41	35	16	7	7	7
Total,	Total,	7	8	11	7	12	22	20	24	35	25	11	5	5	5
Lycoming,	Males,	10	7	13	17	17	19	16	17	18	15	7	4	4	4
Females,	Females,	12	19	14	18	29	23	23	23	23	19	7	5	5	5
Total,	Total,	6	11	5	11	21	11	13	13	12	8	4	1	1	1
McKean,	Males,	6	5	11	11	11	11	8	8	17	11	3	1	1	1
Females,	Females,	34	25	12	25	20	21	22	59	57	45	23	6	6	6
Total,	Total,	18	13	14	12	13	20	18	34	33	23	9	3	3	3
Mercer,	Males,	16	10	17	18	19	18	21	22	22	14	3	2	2	2
Females,	Females,	12	7	9	15	11	10	10	16	13	11	8	1	1	1
Total,	Total,	4	10	9	4	7	10	8	7	19	11	5	2	2	2
Monroe,	Males,	4	8	11	9	13	13	15	22	26	14	6	3	3	3
Females,	Females,	2	7	6	4	8	6	10	10	10	7	4	2	2	2
Total,	Total,	53	47	54	63	68	82	107	95	100	91	33	10	10	10
Montgomery,	Males,	31	29	29	36	31	33	41	44	44	45	18	3	3	3
Females,	Females,	22	18	23	27	33	41	68	47	44	45	18	3	3	3

TABLE 3.—Continued.

	AGE.													Un.
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95+	
Montour,														
Total,	6	9	8	11	11	9	9	6	12	13	3	.....	2
Males,	4	8	6	7	7	6	6	5	12	10	2	.....	1
Females,	2	1	2	4	4	3	3	1	7	3	1	.....	1
Northampton,														
Total,	20	35	28	41	36	58	60	74	67	60	21	9	1	
Males,	18	28	23	21	21	40	31	44	35	25	9	6	1	
Females,	11	17	10	15	15	18	29	30	32	35	12	1	1	
Northumberland,														
Total,	13	17	18	27	32	33	52	49	34	32	14	2	1	
Males,	1	6	10	15	18	18	24	27	15	20	5	1	3	
Females,	12	9	8	12	14	15	28	22	19	12	9	1	1	
Perry,														
Total,	3	9	8	10	20	21	35	48	32	11	13	4	4	
Males,	3	8	6	11	17	17	23	27	15	6	8	2	2	
Females, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Philadelphia,														
Total,	1,352	1,318	1,370	1,350	1,335	1,453	1,467	1,524	1,557	736	417	116	36	
Males,	728	711	718	700	713	713	707	729	737	356	145	32	18	
Females,	624	607	652	650	622	740	760	795	820	380	272	84	18	
Pike,														
Total,	165	171	174	174	174	174	174	174	174	174	174	174	174	
Males, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Females, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Potter,														
Total,	9	10	12	4	4	17	14	14	13	21	13	1	4	
Males,	6	6	7	4	4	6	6	4	8	1	1	.....	.....
Females,	3	4	5	.....	.....	7	7	7	10	10	9	1	2
Schuykill,														
Total,	70	63	61	75	71	101	117	103	88	56	28	5	2	
Males,	45	39	31	53	50	56	50	50	39	24	11	5	1	
Females,	25	24	27	22	23	45	47	53	47	32	17	5	1	
Snyder,														
Total,	7	1	2	4	5	16	16	12	17	25	6	1	1	
Males, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Females, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Somerset,														
Total,	22	22	24	21	22	23	28	24	24	14	3	1	3	
Males,	14	11	14	13	17	13	17	14	14	21	9	3	3	
Females,	8	11	10	8	10	10	11	10	10	23	10	1	1	
Sullivan,														
Total,	3	1	1	2	3	3	3	3	3	3	3	3	3	
Males, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Females, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Susquehanna,														
Total,	17	12	12	21	24	31	44	41	33	25	31	3	2	
Males,	12	7	7	15	16	15	25	23	14	15	2	2	2	
Females,	5	5	5	6	8	16	19	18	19	10	19	1	1	
Tioga,														
Total,	17	11	23	31	36	31	47	49	62	44	24	18	3	
Males,	7	11	17	19	19	18	23	25	34	23	15	8	2	
Females,	9	4	12	14	17	13	24	24	28	21	9	10	1	

Unkon,	Total,	7	4	6	9	5	13	16	27	34	15	8	2	.....	1
Males,	Males,	1	2	1	5	5	9	9	17	13	6	4	2	.....	2
Females,	Females,	6	2	5	4	.....	10	7	10	21	9	4	3	.....	1
Total,	Total,	21	13	13	22	20	28	41	56	39	31	9	6	2	1
Venango,	Males,	14	11	10	13	10	12	27	20	23	13	5	4	2	1
Females,	Females,	17	4	15	9	10	14	14	16	16	19	4	2	.....	2
Total,	Total,	16	10	15	16	13	37	48	36	39	32	14	6	.....	3
Warren,	Males,	16	7	11	4	14	13	25	18	25	11	7	1	.....	1
Females,	Females,	7	2	3	4	4	14	13	18	15	12	7	1	.....	0
Total,	Total,	75	63	60	48	19	62	87	77	74	23	25	16	.....	1
Washington,	Males,	45	33	33	23	26	31	43	40	37	27	17	8	.....	1
Females,	Females,	30	24	27	20	13	27	26	30	24	27	18	9	.....	2
Total,	Total,	4	10	11	16	13	27	26	30	24	27	18	11	.....	3
Wayne,	Males,	137	89	78	76	5	16	13	13	12	14	8	1	.....	2
Females,	Females,	84	64	47	42	61	50	74	122	119	90	26	15	.....	18
Total,	Total,	34	25	31	34	35	43	47	62	60	45	11	7	.....	15
Westmoreland,	Males,	7	12	10	8	10	13	13	24	20	19	13	4	.....	3
Females,	Females,	1	4	6	3	5	8	7	11	8	7	7	2	.....	1
Total,	Total,	6	8	4	5	5	11	6	13	12	12	6	2	.....	1
Wyoming,	Males,	27	24	21	16	25	27	30	28	29	28	36	6	.....	2
Females,	Females,	11	17	11	23	19	31	23	33	46	23	20	1	.....	3
York,	Total,	11	17	11	23	19	31	23	33	46	23	20	1	.....	4
Males,	Males,	11	17	11	23	19	31	23	33	46	23	20	1	.....	2
Females,	Females,	11	17	11	23	19	31	23	33	46	23	20	1	.....	2

[illegible]

TABLE 4.—Continued.

	Beaver Falls borough.	Brad dock borough.	Bradford.	Butler borough.	Carbondale.	Carlisle borough.	Chambersburg borough.	Columbia borough.	Danville borough.	Dubois borough.	Dunmore borough.	Duquesne borough.	Hazleton.	Homestead borough.	Lebanon.	Mahanoy City borough.	Meadville.	Mt. Carmel borough.	Nanticoke borough.	Oil City.	Phoenixville borough.	Pittston.
181 Other diseases of nervous system,				2	1				1	1					1	1						
182 Diseases of the eye and its adnexa,				1					1													
183 Diseases of the ear,		1													2							
III. Diseases of the Circulatory System.																						
200 Pericarditis,			1												1	2	1	1	1	1	1	1
201 Endocarditis,	1		1	17	1		17	15	17	9	17	8	14	14	20	17	15	14	5	18	7	11
202 Heart disease,	16	11	35	2			1	2	2	2	1	1	1	1	1	1	1	1	5	5	1	1
203 Angina pectoris,	1	2	1	2			1	1	1	2	2	1	1	1	1	1	2	2	4	4		2
204 Diseases of arteries,			2	1			1	1	1				1	1	1	1						
205 Embolism and thrombosis,			1																			
206 Diseases of veins,			1																			
207 Diseases of lymphatics,			1																			
208 Hemorrhages,	1		1	1	2		2			1			2	1								
209 Other diseases of circulatory system,																						
IV. Diseases of the Respiratory System.																						
224 Diseases of nasal fossa,				1												3		1	1			1
220 Laryngitis,			1											1				1				1
221 Other diseases of larynx,																						1
222 Diseases of the thyroid body,																						1
223 Acute bronchitis,		6	1	3	4	1	2	1	1		5	4	2	2	3	4	1	3	6		3	3
224 Chronic bronchitis,	4	5	2	3	3	2	4	4	1	12	4	10	1	12	1	11	1	4	2	5	1	7
225 Bronchopneumonia,	1	53	2	10	2	2	11	4	5	3	33	25	17	27	22	11	5	14	25	5	18	21
226 Pneumonia,	9	25	13	1	1	8							2	27	1	27	5	11	1	5	1	1
227 Pleurisy,	1			1		1			3		1		1		1		3	2	1			1
228 Congestion of lungs,		3		1													1	1				
229 Gangrene of lungs,																	3					
230 Asthma,	1	1	3	1		1				1	1	3		2		2	3	1	1			

[illegible]

[illegible]

TABLE 4.—Continued.

	Plymouth borough.	Poole town borough.	Pooleville borough.	Shamokin borough.	Sharon borough.	Shenandoah borough.	So. Bethlehem borough.	Steelton borough.	Sunbury borough.	Titusville.	Warren borough.	West Chester borough.	Wilkinsburg borough.
	250	228	317	290	222	588	287	251	166	114	122	219	243
All causes,													
I. General Diseases.													
01 Typhoid fever,	3	4	7	2	13	2	3	17	5	3	4	10	32
14 Exanthematic typhus,													
15 Recurrent fever,													
11 Malarial fever,	1	1		1		1	1		1	2	1		
09 Small-pox,													
05 Measles,	1	1	3	1	1	8	1	2					2
02 Scarlet fever,	5			1	1	1	1	1	1				
06 Whooping cough,	8	1	1	2	1	13	1	13		1	6	1	
03 Diphtheria,	7	2	2	2	3	29	6	1	1			1	4
04 Croup,	2	1	5	1	1	11	4	1					
10 Influenza,	3	1	3	2	1	2	2	4			2	2	
16 Millary fever,													
13 Asiatic cholera,													
12 Cholera nostras,	2			2	1		3						
17 Dysentery,	1					5	2			1			
17 Plague,													
18 Yellow fever,													
19 Yellow fever,													
08 Erysipelas,			1	1			2	1		1			
20 Other epidemic diseases,							3	1	2			1	
21 Septicemia,		2				3	3						
98 Glanders and farcy,													
99 Malignant pustule and charbon,													
00 Rabies,													
101 Actinomycosis, trichinosis, etc.,													
102 Pellagra,													
30 Tuberculosis of lungs,	8	23	16	20	16	15	13	23	14	13	4	15	22
31 Tuberculosis of larynx,													
32 Tuberculous meningitis,				1	1		1	1	1	1	1	1	2
33 Abdominal tuberculosis,	3	3	1	1	1		1	1	1				3
34 Pott's disease,		1	2		2		1					2	
35 Tuberculous abscess,							1						

347 Diarrhoea and enteritis, under 2 years,	52	15	23	22	10	146	39	26	14	4	3	11	23
348 Diarrhoea and enteritis, 2 years and over,	6	1	1	4	4	9	5	4	1	1	1	4	24
349 Internal parasites,	1	3	1	4	1	1	1	1	1	1	1	1	1
350 Hernia,	1	1	3	1	1	2	1	2	3	1	2	1	1
351 Obstruction of intestines,	1	2	3	1	1	2	1	1	1	1	1	1	1
352 Other diseases of intestines,	1	2	3	1	1	2	1	1	1	1	1	1	1
353 Acute yellow atrophy of liver,	1	2	3	1	1	2	1	1	1	1	1	1	1
354 Hydatid tumors of liver,	1	2	3	1	1	2	1	1	1	1	1	1	1
355 Cirrhosis of liver,	1	2	3	1	1	2	1	1	1	1	1	1	1
356 Gallstones of gall-bladder,	1	2	3	1	1	2	1	1	1	1	1	1	1
357 Other diseases of liver,	1	2	3	1	1	2	1	1	1	1	1	1	1
358 Diseases of spleen,	1	2	3	1	1	2	1	1	1	1	1	1	1
359 Peritonitis (nonpuerperal),	1	2	3	1	1	2	1	1	1	1	1	1	1
360 Appendicitis,	1	2	3	1	1	2	1	1	1	1	1	1	1
361 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
362 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
363 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
364 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
365 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
366 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
367 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
368 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
369 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
370 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
371 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
372 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
373 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
374 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
375 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
376 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
377 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
378 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
379 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
380 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
381 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
382 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
383 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
384 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
385 Other diseases of digestive system,	1	2	3	1	1	2	1	1	1	1	1	1	1
386 Other diseases of digestive system,	1	2	3	1									

TABLE 4.—Continued.

	Plymouth borough.	Pottstown borough.	Pottsville borough.	Shamokin borough.	Sharon borough.	Shenandoah borough.	So. Bethlehem borough.	Steelton borough.	Sunbury borough.	Titusville.	Warren borough.	West Chester borough.	Wilkinsburg borough.
X. Malformation.													
389 Hydrocephalus,													
390 Congenital malformation of heart, cyanosis,	1	1	4	7	1	1	1	1				1	1
391 Other congenital malformations,				2	2	4	4	4					
392 Other congenital malformations,													
XI. Early Infancy.													
390 Premature birth,	3	5	3	10	10	13	15	4	5	1	4	4	1
391 Congenital debility,	2	4	2	8	6	21	9	5	5	1	5	7	1
392 Other diseases of early infancy,	1					2		1					
393 Lack of care,													
XII. Old Age.													
400 Old age,	6		1		3		3	1					3
XIII. Violence.													
410 Suicide by poison,													
411 Suicide by asphyxia,													
412 Suicide by strangulation,	1	2											1
413 Suicide by drowning,					1								
414 Suicide by firearms,													
415 Suicide by cutting instruments,			2						1				
416 Suicide by jumping from high places,													
417 Suicide by crushing,													
418 Other suicides,	2	6	5	1	2	1	1	5	2		2	4	1
420 Fractures,													
421 Dislocations,	5	2	2	1	4	7		6					1
422 Burns and scalds,													
423 Heat and sunstroke,													
424 Cold and freezing,		1		1									
425 Lacerations,													
426 Drowning,	2		1		2	2							
427 Inhalation of poisonous gases,													
441 Conflagration,													
428 Other accidental poisonings,				2		3	1						
429 Accidental gunshot wounds,													
430 Injuries by machinery,		1	4		2	25	3						
431 Injuries in mines and quarries,	2	7	8	9	2		2						
432 Railroad accidents and injuries,	1		11	2	5	8	9	5	11	1			1

TABLE 5.
Number of deaths at each age period by sex, color, general nativity and parent nativity.

	All ages.	Under 1.	1.	2.	3.	4.	Under 5.	5 to 9.	10 to 14.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.
Total.	114,435	27,908	6,125	2,395	1,463	1,060	38,851	2,916	1,897	3,402	4,744	4,779	4,562	4,771
Males.	62,642	15,796	3,185	1,232	721	517	21,501	1,497	1,014	1,849	2,794	2,761	2,622	2,879
Females.	51,793	12,112	2,940	1,163	742	543	17,350	1,419	883	1,553	1,950	2,018	1,940	1,892
White.	109,257	26,628	5,766	2,249	1,397	1,008	37,048	2,769	1,763	3,164	4,366	4,409	4,262	4,479
Males.	59,510	13,516	3,160	1,200	736	496	20,473	1,392	812	1,733	2,522	2,601	2,466	2,715
Females.	49,747	13,112	2,606	1,049	661	512	16,575	1,377	951	1,431	1,844	1,808	1,796	1,764
Native.	84,732	26,353	5,696	2,153	1,233	935	30,402	2,607	1,679	2,486	3,550	3,778	3,596	3,754
Males.	45,009	14,925	2,696	1,155	647	468	16,372	1,353	901	1,319	1,570	1,400	1,287	1,522
Females.	39,723	11,428	2,999	1,098	586	467	14,030	1,254	778	1,167	1,980	2,378	2,309	2,232
Both parents native.	25,069	7,553	1,317	574	342	275	10,061	709	556	774	867	774	787	775
M.	23,130	6,732	1,213	529	339	272	8,135	767	530	768	897	854	791	712
One or both parents foreign.	15,996	6,931	1,565	565	297	181	9,589	526	223	306	442	521	594	590
M.	13,330	5,348	1,430	454	280	208	7,720	465	225	356	420	412	516	430
F.	3,944	401	44	16	8	12	481	29	22	56	116	106	116	157
Parentage unknown.	3,253	543	37	15	12	10	417	21	23	43	63	110	80	100
Foreign.	22,968	183	146	92	68	47	536	151	73	650	1,373	1,546	1,273	1,580
Males.	13,128	101	77	43	37	25	255	76	35	213	382	457	367	406
Females.	9,840	82	69	49	31	22	281	75	38	237	991	1,089	906	1,174
Unknown.	3,557	87	14	4	1	1	109	11	9	25	61	69	92	123
Colored.	1,173	46	7	2	1	1	57	5	7	17	31	31	31	31
Males.	84	41	7	2	1	1	52	6	2	11	12	13	13	12
Females.	5,178	1,280	339	146	66	52	1,903	147	124	218	348	370	300	292
Colored.	2,732	714	175	83	36	21	1,028	63	64	78	173	200	165	164
Males.	2,446	566	184	64	30	21	875	84	70	160	176	170	134	128
Females.	2,695	709	175	81	36	21	1,022	63	63	77	171	198	161	158
Black.	2,439	563	184	64	30	31	872	83	70	159	176	169	134	128
Indian.	3	3	1	1	1	1	4	1	1	1	1	1	1	1
Chinese and Japanese.	29	2	1	1	1	1	2	1	1	1	1	2	5	6
M.	29	2	1	1	1	1	2	1	1	1	1	2	5	6
F.	2	2	1	1	1	1	2	1	1	1	1	2	5	6

BIRTHS.

One hundred and sixty-seven thousand, two hundred and sixty-five births, exclusive of still births, were registered during the year. The birth rate based upon these returns was 24.1 per 1,000 of population. There is no doubt but what this rate is considerably less than the actual birth rate and the unpleasant fact is, therefore, developed that many births in Pennsylvania are unregistered through the wilful neglect most frequently of physicians and midwives and sometimes of parents to comply with the Registration Law. Unfortunately the detection of all unregistered births is not readily accomplished and this fact seems to be fully appreciated by those who seek to evade the requirements of the law.

Local Registrars in delinquent districts with the failure of the first few months' work before them are rapidly developing ways and means for the discovery and punishment of offenders. Failure to properly register a birth involves more than a violation of a statute or the making of a contribution to vital statistics, inasmuch as it deprives a child of the record to which it is honestly entitled and which may be of the greatest personal advantage to it in the future. This fact should within itself be sufficient to secure promptly a record of every birth within the State and render unnecessary legal punishment of those responsible for making such records.

Just how many unregistered births occurred in this State during the year 1906, must be a matter of some speculation. By consulting the census returns of 1900 we are enabled, however, to ascertain approximately what the normal birth rate should be. When the number of children under one year of age are added to those born and died during the census year, we find that Pennsylvania had a birth rate of 26.9 per 1,000 during that year.

When the difference between this rate and the death rate is considered, which difference represents the natural increase of native population, we find that it is insufficient to provide for the increase in native population, and that, therefore, the census enumeration of children under one year of age was evidently too low, a fact with which census officials agree.

Without considering in any way the extent of the error in that enumeration it is evident that Pennsylvania in 1900 must inevitably have had a birth rate of 26.9 as above stated, and upon this basis at least 17,000 births were unregistered in the State during 1906.

The birth rate of the native population was 20.0 and of the foreign born population was 45.3.

Of the total number 87,251 were males and 80,014 females.

There were 1,847 plural births, 1,832 being twin births and 15 triplets. Of the twin births 1,259 occurred among the native and 569 among the foreign born population, in four cases the nativity being unstated. Of the triple births, 11 occurred in the native and 4 in the foreign born. There were 4,128 illegitimate births, a rate of 59.5 per 100,000 of population; the native rate being 60.9 and the foreign rate 43.1.

The birth rate among the foreign born is considerably higher than the rates in the countries represented in this class of our population, which fact is due to the peculiar distribution of our foreign population by age periods, there being a marked deficiency under 15 years of age as compared with their native countries.

Table 1 shows the births by sex and months for the entire State and for all incorporated municipalities over 5,000 population, also for certain groups of municipalities and for the rural sections of each county.

Table 2 shows the births for the same municipal sub-divisions by the age and nativity of mothers.

Table 3 shows the births for the same municipal sub-divisions by nativity of mothers and the number of child of each class.

Table 4 shows the plural births by locality and nativity of mothers.

Table 5 shows the illegitimate births by locality and nativity of mothers.

TABLE 1.

Births by sex and months for incorporated municipalities having more than 5,000 population, for certain groups of municipalities having less than 5,000 population and for the rural sections of each county.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Entire State,	167,965	13,572	13,411	14,423	12,999	12,905	13,590	14,908	15,088	14,288	14,168	13,498	14,090
Males,	87,281	7,478	6,874	7,461	6,716	7,342	7,484	8,517	8,794	7,430	7,278	7,084	7,198
Females,	80,684	6,094	6,537	6,962	6,283	5,563	6,106	6,391	6,294	6,858	6,890	6,414	6,892
Allegheny,	2,263	89	154	183	170	186	225	202	198	204	189	207	190
Males,	1,171	55	82	90	98	108	131	103	110	113	94	108	83
Females,	1,092	34	72	93	75	78	94	99	88	91	95	105	108
Allentown,	1,077	93	88	90	83	90	84	82	111	75	88	113	105
Males,	537	52	45	45	40	45	49	39	59	35	43	45	41
Females,	540	41	43	45	42	45	35	43	52	40	46	68	40
Altoona,	1,269	87	100	116	105	95	109	101	113	107	125	97	114
Males,	663	38	62	65	46	45	60	53	63	54	72	55	49
Females,	606	49	38	51	59	50	49	48	50	53	53	42	65
Archbald,	165	17	18	11	12	15	8	17	15	15	14	15	8
Males,	92	10	11	8	4	9	7	10	7	7	7	8	2
Females,	73	7	7	3	8	6	1	7	8	8	7	7	6
Ashland,	167	24	17	20	12	15	20	13	21	13	18	15	13
Males,	107	15	14	19	5	12	12	12	16	10	10	10	8
Females,	60	9	3	11	7	3	8	1	5	3	8	5	5
Beaver Falls,	267	20	23	24	23	17	20	23	30	12	24	18	17
Males,	133	12	15	13	12	12	12	12	18	12	12	12	7
Females,	134	8	17	11	10	5	8	10	12	7	12	6	10
Bethlehem,	245	10	27	14	13	13	26	15	21	25	25	18	23
Males,	129	5	11	7	7	8	13	13	12	15	8	11	14
Females,	116	5	16	7	6	5	13	2	9	10	17	7	9
Bloomshurg,	144	8	16	11	12	10	13	5	13	14	18	12	17
Males,	84	2	3	7	4	3	9	3	4	6	9	7	13
Females,	60	6	9	4	8	7	4	2	9	8	9	5	4
Bradford,	828	63	54	63	61	74	68	77	63	74	74	81	76
Males,	457	29	24	27	27	40	40	46	34	42	48	41	43
Females,	371	34	30	36	34	34	28	31	29	32	26	40	33
Bradford,	302	23	23	20	17	31	23	22	23	20	21	34	30
Males,	187	12	12	12	10	11	11	14	15	11	9	18	16
Females,	115	11	11	8	7	20	12	10	8	9	12	16	14
Bristol,	142	14	18	15	15	10	10	13	10	8	12	17	14
Males,	74	7	8	7	1	7	3	3	5	3	5	7	9
Females,	68	7	11	8	4	3	7	9	5	5	7	10	5

TABLE 1.—Continued.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Butler,	Total,	35	25	40	41	42	55	29	52	48	61	38	52
Males,	Males,	18	15	12	21	24	26	17	15	22	27	23	29
Females,	Females,	17	10	18	20	18	29	12	37	26	34	15	23
Total,	Total,	389	34	30	25	38	34	30	27	33	34	23	33
Carbondale,	Males,	185	29	14	10	19	16	14	15	17	14	14	16
Males,	Females,	195	14	16	16	19	13	16	12	16	20	20	9
Total,	Total,	134	9	6	11	11	16	11	12	17	8	11	15
Carlisle,	Males,	62	5	2	4	4	7	7	7	7	5	5	8
Females,	Females,	72	4	4	4	7	9	4	8	10	2	6	7
Total,	Total,	253	19	23	21	22	21	19	22	34	24	30	27
Carnegie,	Males,	134	9	10	12	11	12	10	17	20	12	19	12
Females,	Females,	149	12	16	14	13	17	10	17	14	12	11	12
Total,	Total,	283	21	26	26	24	29	20	23	15	22	30	24
Chambersburg,	Males,	125	10	12	10	12	12	11	10	8	11	10	10
Females,	Females,	114	9	14	14	7	15	9	12	9	11	9	11
Total,	Total,	236	19	26	24	19	27	20	22	17	22	19	21
Charlottesville,	Males,	110	6	8	10	5	10	8	13	15	9	10	10
Females,	Females,	96	13	8	5	10	6	11	7	14	7	3	7
Total,	Total,	670	57	46	35	49	63	54	66	53	58	57	67
Chesler,	Males,	333	25	21	16	21	30	41	36	27	25	29	33
Females,	Females,	337	32	25	20	28	28	23	36	28	33	28	34
Total,	Total,	172	23	12	8	12	23	13	16	15	20	4	18
Clearfield,	Males,	84	12	8	3	6	13	7	3	4	11	1	7
Females,	Females,	88	11	4	3	2	10	6	13	11	9	3	11
Total,	Total,	299	21	25	29	30	25	23	22	25	28	24	27
Coatesville,	Males,	174	11	13	12	20	10	13	14	14	13	11	21
Females,	Females,	125	10	27	12	16	10	10	11	11	12	11	11
Total,	Total,	325	40	40	25	46	23	23	25	27	25	22	32
Columbia,	Males,	191	28	16	10	18	13	14	15	16	13	12	16
Females,	Females,	175	12	11	15	18	13	12	12	12	13	12	13
Total,	Total,	238	23	20	22	27	20	28	27	28	26	24	29
Connellsville,	Males,	119	11	10	7	10	7	12	10	4	11	11	13
Females,	Females,	139	12	10	10	13	13	16	11	8	10	12	11
Total,	Total,	123	8	15	4	11	16	9	7	13	14	12	11
Conshohocken,	Males,	69	4	7	2	6	8	6	6	6	8	5	8
Females,	Females,	60	4	8	2	6	14	9	7	8	6	5	10
Total,	Total,	99	7	8	4	6	14	9	7	7	13	8	10
Corry,	Males,	58	4	5	2	1	5	6	4	4	7	2	2
Females,	Females,	41	3	3	2	1	5	1	3	3	6	6	8

Danville,	186	13	13	15	14	16	10	20	13	19	23	14	15
Total,	103	9	9	8	11	8	4	9	5	12	13	4	8
Males,	82	4	4	7	3	8	8	6	5	10	10	10	7
Females,	170	14	17	11	13	19	13	12	8	17	10	11	16
Dickson City,	71	7	7	8	17	11	9	11	6	9	5	9	10
Total,	82	31	30	33	26	36	25	31	29	31	27	30	23
Males,	187	15	12	17	16	17	15	13	17	17	19	16	13
Females,	188	19	18	16	10	19	10	18	12	14	8	14	10
DuPela,	815	23	26	35	30	23	18	25	35	18	17	20	35
Total,	173	10	19	21	14	16	9	13	17	8	8	16	21
Males,	143	13	17	14	16	7	7	9	13	18	10	9	14
Females,	510	43	41	43	30	35	44	44	48	43	56	37	46
Dunmore,	208	22	21	24	16	15	20	25	32	22	28	15	28
Total,	242	21	20	19	14	20	24	19	16	21	28	22	18
Males,	546	50	41	37	49	43	56	32	40	55	50	43	43
Females,	263	21	20	18	28	28	21	23	18	25	19	23	16
Easton,	253	29	30	19	19	23	21	23	14	15	26	27	27
Total,	149	13	6	13	6	14	8	7	13	25	12	12	9
Males,	15	3	3	3	3	3	3	3	3	3	3	3	3
Females,	174	10	118	126	124	112	104	121	128	120	112	111	118
Erie,	1,414	54	73	65	67	64	49	61	72	65	52	64	60
Total,	686	56	45	61	57	64	43	55	56	61	47	56	56
Males,	184	14	9	10	11	13	15	14	13	17	16	15	11
Females,	87	8	3	10	3	7	7	9	7	12	7	8	6
Forest City,	263	25	27	28	19	20	23	18	24	19	36	22	32
Total,	154	14	10	14	7	11	8	13	10	10	17	14	17
Males,	148	11	17	14	12	9	15	5	14	9	19	8	15
Females,	205	20	3	26	21	17	13	20	16	21	19	16	13
Franklin,	103	12	2	16	12	18	8	3	9	5	10	8	7
Total,	102	8	1	11	9	9	10	11	7	11	11	8	6
Males,	157	9	16	17	15	12	9	17	10	13	14	16	8
Females,	88	5	11	8	6	6	7	9	3	10	8	6	2
Greensburg,	232	24	17	23	20	20	26	20	25	23	28	20	24
Total,	146	17	11	14	14	17	17	17	15	15	19	10	11
Males,	147	15	10	12	6	10	10	12	18	10	18	10	17
Females,	127	10	4	12	14	17	11	11	13	14	6	8	10
Greenville,	67	4	3	5	8	9	8	5	3	8	3	3	4
Total,	60	6	1	7	6	8	8	3	6	6	3	5	6
Males,	175	6	12	24	8	19	25	10	20	8	18	11	14
Females,	86	5	7	15	2	7	9	5	9	4	10	4	9
Hanover,	89	1	5	9	12	16	5	11	11	4	8	7	5
Harrisburg,	182	70	61	130	96	103	112	113	99	90	105	96	108
Total,	696	31	30	80	45	61	43	60	45	45	61	45	61
Males,	576	39	31	50	51	42	69	53	54	45	50	47	50
Females,	285	24	38	15	35	18	25	18	33	23	23	11	25
Hazleton,	146	13	21	9	15	8	11	6	12	18	11	6	16
Total,	139	11	17	7	20	10	14	12	7	15	12	5	9
Males,	653	25	54	49	57	46	47	40	69	71	68	67	65
Females,	335	12	20	29	24	22	23	23	39	42	31	36	31
Homestead,	323	13	34	20	23	24	24	11	30	29	37	31	31

TABLE 1.—Continued.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Huntingdon,	125	8	15	7	8	11	9	12	10	9	20	7	13
Males,	67	4	10	5	1	5	2	6	7	5	13	4	8
Females,	58	4	5	2	7	6	3	6	3	4	7	3	5
Indiana,	106	16	7	10	11	6	4	5	11	13	7	5	11
Males,	59	8	4	7	7	2	3	7	6	7	3	3	8
Females,	46	7	3	3	4	4	1	4	5	6	4	2	3
Jeanette,	183	16	9	20	14	13	14	23	16	11	11	18	21
Males,	102	8	12	12	9	9	8	10	8	6	5	12	15
Females,	81	7	3	8	5	4	6	13	8	5	6	6	6
Johnsbourg,	157	11	18	10	16	12	17	17	23	13	8	11	15
Males,	78	8	14	5	9	7	8	7	12	6	3	5	11
Females,	79	3	4	5	7	5	9	4	10	7	5	6	4
Johnstown,	1,225	126	112	97	107	81	88	126	108	109	83	96	89
Males,	633	73	58	60	63	36	42	58	66	61	57	58	41
Females,	592	53	54	47	44	45	44	68	42	48	31	38	48
Kane,	152	11	20	10	16	14	12	9	13	10	11	13	13
Males,	73	8	13	5	3	7	3	5	6	4	4	6	9
Females,	79	3	7	5	13	7	9	4	7	6	7	7	4
Lancaster,	665	67	67	67	47	49	53	62	46	74	54	35	45
Males,	333	32	38	39	23	22	26	30	26	45	20	17	20
Females,	332	35	29	38	19	27	26	32	20	29	34	18	25
Lansford,	182	15	14	16	19	14	15	17	19	17	16	15	16
Males,	100	8	8	8	8	7	11	10	7	9	9	7	8
Females,	82	7	6	8	11	7	4	7	12	8	7	8	8
Latrobe,	247	24	12	22	11	13	16	37	31	29	18	13	20
Males,	124	12	6	7	10	11	13	15	17	11	13	11	15
Females,	123	12	6	16	6	17	9	12	14	18	5	2	5
Lebanon,	397	31	29	35	35	37	29	33	41	28	28	28	34
Males,	206	13	12	21	20	21	20	18	20	17	17	14	13
Females,	191	18	17	18	15	16	9	20	21	11	11	14	21
Leighton,	190	11	15	10	5	12	10	11	10	9	9	10	10
Males,	67	5	9	6	3	7	6	6	5	4	6	6	5
Females,	53	6	6	4	2	5	4	5	5	5	3	3	5
Lewistown,	238	19	23	18	19	21	20	22	20	18	12	26	20
Males,	121	12	10	8	11	16	10	9	11	7	6	13	8
Females,	117	7	13	10	8	5	10	13	9	11	6	13	12
Lock Haven,	163	12	7	14	16	13	16	12	19	17	13	17	6
Males,	96	8	4	8	6	10	7	7	10	9	11	10	5
Females,	67	4	3	6	10	3	9	5	9	8	2	7	1

[illegible]

TABLE 1.—Continued.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Ellyphant,	174	22	13	8	9	15	17	15	12	19	21	15	6
Males,	84	9	6	4	4	8	9	8	6	10	14	5	3
Females,	90	13	7	4	5	7	8	7	6	9	7	10	3
Philadelphia,	33,356	2,921	2,678	2,785	2,352	2,817	2,780	3,007	3,043	2,735	2,890	2,635	2,803
Males,	17,400	1,437	1,369	1,440	1,333	1,444	1,428	1,582	1,566	1,387	1,423	1,384	1,397
Females,	15,956	1,484	1,309	1,345	1,119	1,373	1,352	1,425	1,477	1,348	1,467	1,251	1,406
Phoenixville,	301	19	35	18	23	24	24	24	24	24	33	23	25
Males,	143	10	15	8	9	10	13	13	10	13	16	15	15
Females,	158	9	20	10	14	14	11	11	14	11	17	8	10
Pittsburg,	7,565	627	642	638	598	624	593	637	652	620	630	572	689
Males,	3,919	318	337	339	293	358	313	362	339	314	338	302	369
Females,	3,646	309	308	309	314	270	280	295	313	315	292	270	320
Pittston,	418	36	33	50	33	32	54	31	31	30	40	25	35
Males,	219	21	13	23	19	17	25	19	18	22	21	10	20
Females,	199	15	20	27	14	15	29	9	13	8	19	15	15
Plymouth,	387	24	26	30	25	31	29	32	33	37	42	37	36
Males,	206	12	18	17	11	16	12	16	22	23	25	17	17
Females,	181	17	8	13	14	15	17	16	11	14	17	20	19
Pottstown,	296	22	18	28	23	22	36	18	29	22	22	28	20
Males,	148	13	9	17	12	10	18	12	14	11	11	11	10
Females,	149	19	9	11	11	12	18	6	15	11	11	15	10
Pottsville,	336	23	34	32	18	23	35	29	19	26	27	32	28
Males,	177	17	16	19	10	16	21	15	13	13	14	19	15
Females,	159	6	18	13	8	7	14	14	6	13	13	13	13
Punxsutawney,	183	15	15	20	17	20	14	14	12	13	13	20	12
Males,	103	10	15	20	13	12	10	10	6	7	11	11	7
Females,	80	5	6	11	4	8	4	4	6	6	2	9	5
Reading,	2,188	190	169	188	139	156	174	212	191	185	175	208	179
Males,	1,114	100	88	96	68	82	92	112	95	91	87	114	90
Females,	1,072	90	81	93	91	74	82	100	96	94	88	94	89
Rochester,	156	17	13	9	17	11	10	7	18	14	9	17	14
Males,	81	9	8	3	5	6	4	4	10	10	4	11	7
Females,	75	8	5	6	12	5	6	3	8	4	5	6	7
St. Clair,	164	15	12	14	11	11	20	15	8	8	22	17	11
Males,	85	6	6	7	7	7	14	7	3	1	11	11	6
Females,	79	10	6	7	4	4	6	8	5	7	11	6	5
St. Marys,	201	18	15	20	19	17	21	22	16	16	10	16	11
Males,	102	9	10	11	10	9	13	9	11	11	5	8	6
Females,	99	9	10	9	13	8	8	13	5	5	5	8	5

Sayre,	Total,	163	8	14	13	25	13	9	13	13	21	8	12	16
Males,	Males,	84	3	11	8	11	7	3	5	9	13	4	7	8
Females,	Females,	79	5	3	5	14	6	6	4	4	8	4	5	8
Scottsdale,	Total,	165	17	15	13	15	16	10	11	13	15	13	15	12
Males,	Males,	85	8	9	7	7	8	7	8	8	10	8	9	8
Females,	Females,	80	9	6	6	8	8	3	5	5	5	5	6	4
Scranton,	Total,	2,337	176	172	177	181	222	234	219	232	262	175	193	166
Males,	Males,	82	98	98	87	94	125	106	114	110	101	86	108	81
Females,	Females,	1,502	81	74	90	80	97	128	106	122	161	89	85	85
Shamokin,	Total,	1,156	111	112	122	120	138	130	136	141	149	143	149	138
Males,	Males,	586	23	21	24	23	26	20	21	23	25	21	18	18
Females,	Females,	570	88	91	98	97	112	110	115	118	124	122	131	120
Sharon,	Total,	376	27	23	33	32	42	27	29	27	29	39	30	36
Males,	Males,	165	14	15	16	15	21	12	12	17	14	17	13	19
Females,	Females,	191	13	10	17	7	21	15	17	10	15	22	17	17
Sharpsburg,	Total,	130	5	13	2	12	13	10	11	10	12	9	17	6
Males,	Males,	65	3	7	.....	6	8	4	.....	2	6	6	12	4
Females,	Females,	65	2	6	2	6	5	6	4	8	6	3	5	2
Shenandoah,	Total,	375	19	43	37	31	30	38	23	39	36	27	30	33
Males,	Males,	162	8	24	22	13	18	15	9	16	22	18	17	10
Females,	Females,	183	11	19	15	18	12	21	14	14	14	9	13	23
South Bethlehem,	Total,	605	60	51	45	38	47	55	50	51	63	56	64	47
Males,	Males,	324	35	25	23	17	28	20	25	35	36	34	38	23
Females,	Females,	481	25	26	22	20	19	35	25	16	27	22	26	24
Stockton,	Total,	214	14	22	18	14	10	11	11	10	12	11	19	28
Males,	Males,	114	15	15	13	10	10	17	22	10	25	11	15	14
Females,	Females,	206	15	13	25	23	15	31	25	31	27	24	22	23
Sunbury,	Total,	264	23	26	23	22	11	7	13	15	14	8	14	9
Males,	Males,	145	13	13	12	11	8	18	9	16	13	16	8	14
Females,	Females,	149	10	13	13	11	3	17	14	18	17	16	11	23
Tamaqua,	Total,	146	16	11	22	16	15	7	7	11	7	6	3	12
Males,	Males,	94	9	6	14	9	3	7	7	7	10	10	8	11
Females,	Females,	102	7	5	8	7	12	10	15	19	23	21	22	24
Tarantum,	Total,	218	12	16	13	17	16	15	20	19	23	21	22	24
Males,	Males,	98	6	9	6	10	5	6	9	8	13	11	8	12
Females,	Females,	120	6	7	7	7	11	9	11	16	10	10	14	12
Thiessville,	Total,	154	14	15	12	12	13	12	14	11	9	18	13	10
Males,	Males,	69	7	5	7	8	10	6	4	5	4	6	7	3
Females,	Females,	85	7	10	5	4	3	6	10	6	5	12	6	7
Tyone,	Total,	160	18	11	16	20	17	17	18	17	18	12	15	19
Males,	Males,	87	11	11	16	17	15	17	13	18	15	12	15	17
Females,	Females,	73	7	12	12	13	5	10	15	9	7	7	6	5
Uniontown,	Total,	583	24	15	23	19	21	16	24	30	29	26	26	26
Males,	Males,	136	14	6	11	11	10	5	13	8	14	13	15	16
Females,	Females,	147	10	7	13	8	11	11	11	22	15	13	11	10
Warren,	Total,	234	9	29	16	27	14	19	19	15	26	24	21	24
Males,	Males,	112	2	10	4	15	7	9	8	8	14	9	10	16
Females,	Females,	122	7	19	12	12	7	10	11	7	12	15	11	8
Washington,	Total,	243	32	20	36	25	22	17	28	36	35	31	32	29
Males,	Males,	189	20	10	18	16	15	8	15	18	21	13	15	11
Females,	Females,	163	12	10	18	9	7	9	13	18	14	18	17	18
Waynesboro,	Total,	179	13	17	15	15	13	14	14	18	17	16	14	13
Males,	Males,	100	10	7	10	8	7	14	14	18	17	16	14	13
Females,	Females,	79	3	10	5	7	6	8	5	10	11	7	7	2

TABLE 1.—Continued.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
West Chester,	Total.....	20	20	25	11	15	23	14	17	11	19	22	11
	Males.....	14	13	17	6	10	12	6	10	6	11	12	8
	Females.....	6	7	8	5	5	11	8	7	5	8	10	3
West Pittston,	Total.....	13	8	12	18	10	17	7	8	2	16	6	8
	Males.....	7	4	3	11	6	11	3	4	2	11	6	3
	Females.....	6	4	4	5	4	6	4	4	6	5	3	4
Wilkes-Barre,	Total.....	108	110	109	108	127	143	130	120	99	107	118	123
	Males.....	49	57	56	58	61	75	65	60	61	54	64	73
	Females.....	59	53	53	52	66	68	65	60	38	53	54	49
Wilkinsburg,	Total.....	28	28	26	22	30	41	35	34	31	26	33	29
	Males.....	17	13	11	11	11	16	11	11	11	15	20	12
	Females.....	11	15	15	11	19	25	24	23	20	11	13	17
Williamsport,	Total.....	39	36	59	39	42	44	48	52	47	56	45	69
	Males.....	20	21	25	21	22	25	22	23	23	29	26	32
	Females.....	19	15	34	18	20	19	26	29	24	27	19	37
Wilmerding,	Total.....	14	14	19	20	12	16	17	12	9	10	13	12
	Males.....	8	7	13	19	10	10	11	6	7	4	11	8
	Females.....	6	7	6	1	2	6	6	6	2	6	2	4
York,	Total.....	83	82	88	89	77	92	82	110	84	94	81	87
	Males.....	43	37	47	44	43	45	35	56	49	43	41	40
	Females.....	40	45	41	45	34	47	47	54	35	51	40	47
All boroughs between 2,500 and 5,000 population,	Total.....	689	647	655	612	639	640	678	696	689	634	551	618
	Males.....	373	307	348	342	307	314	382	337	357	339	294	324
	Females.....	316	340	307	270	332	326	296	359	332	295	257	294
All boroughs less than 2,500 population,	Total.....	1,641	1,647	1,717	1,620	1,646	1,625	1,722	1,751	1,675	1,679	1,651	1,751
	Males.....	843	841	870	830	880	866	919	886	853	840	863	884
	Females.....	798	806	847	790	766	759	803	865	822	839	788	867
Counties (Rural).													
Adams,	Total.....	48	52	49	43	41	37	56	47	46	45	50	59
	Males.....	27	24	29	26	20	23	29	28	21	25	23	33
	Females.....	21	28	20	17	21	14	27	19	25	20	27	26
Allegheny,	Total.....	245	213	246	243	261	246	263	263	263	263	239	262
	Males.....	126	107	142	121	113	127	150	168	135	160	141	169
	Females.....	119	106	104	122	122	119	113	137	117	148	98	134
Armstrong,	Total.....	74	73	84	63	63	67	68	84	96	84	78	83
	Males.....	35	35	46	40	33	37	35	47	53	35	37	35
	Females.....	39	37	38	23	34	34	33	37	53	39	39	50
Beaver,	Total.....	298	298	335	334	400	340	323	338	338	433	293	300
	Males.....	21	19	12	13	17	14	13	25	19	24	13	17
	Females.....	14	9	23	15	23	12	19	13	19	19	16	13

Hedford,	Total.....	732	61	72	73	54	73	57	52	69	59	58	46	47
Males.....	389	29	35	36	36	36	36	34	31	33	30	30	31	30
Females.....	343	32	32	37	37	18	38	24	20	36	29	28	15	17
Barka,	Total.....	1,643	114	132	133	120	142	116	117	147	123	120	150	134
Males.....	844	64	63	68	68	66	75	63	60	73	67	68	86	66
Females.....	799	50	69	85	65	54	67	53	57	74	56	52	64	68
Blair,	Total.....	676	40	52	60	47	59	45	43	63	40	46	37	37
Males.....	351	19	30	29	26	30	30	22	20	33	28	25	23	23
Females.....	325	21	22	31	21	17	29	23	23	30	12	21	14	14
Bradford,	Total.....	657	56	60	67	60	72	45	47	67	67	67	70	48
Males.....	356	26	24	34	32	35	35	26	23	33	31	22	40	24
Females.....	301	30	26	23	28	37	37	19	25	34	36	45	30	24
Bucks,	Total.....	862	72	60	86	64	71	62	81	61	90	67	68	80
Males.....	436	28	32	40	33	40	26	37	40	49	37	28	46	46
Females.....	425	44	28	46	31	31	45	25	41	12	51	39	22	34
Butler,	Total.....	526	79	67	61	61	71	66	67	68	41	78	88	88
Males.....	474	43	38	38	35	35	40	39	34	35	38	36	49	49
Females.....	494	35	29	23	26	26	31	27	33	34	30	40	47	39
Cambria,	Total.....	1,457	90	117	155	125	148	115	124	122	124	150	106	123
Males.....	751	38	54	75	67	67	81	55	60	62	63	84	63	67
Females.....	706	42	63	80	49	58	67	60	64	60	61	66	42	55
Cameron,	Total.....	97	5	8	11	13	15	6	11	5	6	12	6	6
Males.....	49	3	3	5	5	4	4	3	4	1	4	7	6	2
Females.....	48	2	5	6	6	9	11	3	7	4	2	5	0	4
Carbon,	Total.....	564	35	36	53	47	45	53	48	40	50	67	47	38
Males.....	286	20	13	27	23	30	32	22	24	27	27	35	23	14
Females.....	278	15	23	31	14	25	21	26	24	13	23	32	24	24
Centre,	Total.....	751	53	75	75	72	53	61	42	59	62	64	73	67
Males.....	415	37	43	39	44	26	26	18	18	37	25	41	39	40
Females.....	336	21	32	36	28	46	27	25	24	22	37	23	34	27
Chester,	Total.....	1,132	115	86	110	92	96	81	103	95	96	88	100	90
Males.....	589	43	41	55	48	51	43	53	53	52	47	48	57	42
Females.....	543	72	45	55	44	41	53	28	50	43	49	40	43	48
Clarion,	Total.....	637	31	35	27	22	27	23	24	31	56	45	41	57
Males.....	325	25	25	20	17	19	22	22	23	23	27	18	18	34
Females.....	312	6	10	7	10	3	5	1	1	8	29	27	23	23
Clearfield,	Total.....	1,611	117	140	160	140	150	115	133	144	134	151	171	180
Males.....	859	65	71	82	79	71	76	77	73	70	73	88	87	96
Females.....	752	52	69	73	70	79	69	66	60	74	61	63	84	84
Clinton,	Total.....	2,78	26	23	23	18	22	26	18	28	29	21	10	21
Males.....	142	14	11	11	10	14	12	11	11	11	11	10	6	4
Females.....	1,366	12	12	12	8	8	14	15	7	17	8	11	4	13
Columbia,	Total.....	515	40	53	53	40	47	40	40	35	54	35	43	35
Males.....	279	18	34	31	19	25	21	16	13	21	25	20	26	20
Females.....	236	22	19	22	21	15	26	24	27	14	29	15	17	15
Crawford,	Total.....	513	91	39	60	49	47	55	46	39	53	56	42	41
Males.....	283	17	40	36	26	30	26	30	23	26	26	34	29	21
Females.....	230	74	17	23	23	19	21	25	23	13	27	22	17	20
Cumberland,	Total.....	557	150	42	40	42	42	41	41	56	46	46	50	42
Males.....	261	17	19	14	22	21	21	26	21	23	23	22	23	19
Females.....	296	13	27	28	20	21	21	15	20	33	23	24	27	23
Dauphin,	Total.....	847	61	56	78	70	71	77	75	70	73	74	71	69
Males.....	543	31	29	38	37	41	41	59	45	45	46	46	40	30
Females.....	304	30	27	39	33	30	30	18	30	25	27	28	31	39

TABLE 1.—Continued.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Delaware,	530	30	49	46	50	43	46	51	45	51	42	33	43
Males,	278	15	21	24	27	18	26	27	23	27	23	22	25
Females,	251	15	28	22	23	25	20	24	22	24	19	16	17
Elk,	536	41	54	39	43	38	35	49	47	44	44	37	40
Males,	273	21	36	21	23	19	27	37	33	33	35	16	21
Females,	273	40	46	18	20	19	8	12	14	11	9	21	19
Erie,	493	45	48	43	56	42	45	49	47	49	32	31	36
Males,	263	21	18	22	28	25	26	25	27	22	16	21	21
Females,	230	24	22	17	28	16	19	26	20	27	26	14	15
Fayette,	2190	175	168	193	180	208	156	174	180	203	204	176	153
Males,	1,066	85	87	102	92	102	93	87	107	105	120	89	87
Females,	1,024	80	81	96	88	101	63	87	83	98	84	87	66
Forest,	205	14	12	27	13	16	17	18	19	18	16	14	21
Males,	106	10	5	15	6	7	5	13	9	13	6	6	6
Females,	99	4	7	12	7	9	12	5	10	6	10	8	9
Franklin,	883	79	72	82	88	72	66	60	64	81	81	65	73
Males,	454	40	32	39	44	43	36	37	34	43	38	33	36
Females,	429	39	40	43	44	29	30	23	30	38	43	37	37
Fulton,	238	15	25	19	17	17	13	25	22	14	19	29	23
Males,	129	7	14	10	8	8	6	11	14	9	14	14	12
Females,	215	23	11	42	28	13	20	14	8	5	5	15	11
Greene,	375	23	40	21	28	33	30	38	23	23	25	32	26
Males,	183	12	19	21	21	27	10	18	17	14	14	13	12
Females,	192	21	21	17	17	6	20	20	6	11	11	19	14
Huntingdon,	463	39	35	40	37	37	30	32	21	20	11	13	12
Males,	229	15	15	23	22	20	19	16	18	17	17	17	23
Females,	239	24	20	17	15	17	11	16	38	21	17	17	23
Indiana,	1,050	81	78	77	76	75	82	85	132	84	93	83	105
Males,	529	48	38	43	43	39	49	43	61	33	47	38	48
Females,	521	33	40	34	36	36	33	42	71	51	46	44	57
Jefferson,	1,259	92	111	118	112	116	115	106	116	87	94	97	96
Males,	654	47	65	58	54	64	57	53	53	51	46	48	49
Females,	605	45	46	60	58	52	58	53	63	36	49	49	36
Junata,	311	27	27	26	26	24	21	30	33	25	30	23	34
Males,	176	14	13	17	14	14	13	10	14	19	16	15	12
Females,	135	13	14	9	12	10	8	20	19	11	14	12	22
Lackawanna,	283	13	17	28	27	20	26	10	23	11	18	27	16
Males,	142	11	8	15	15	16	13	13	15	12	13	13	14
Females,	141	5	9	20	12	9	13	9	17	12	6	10	14

Lancaster,	2,055	155	190	174	181	176	162	187	183	169	147	167
Males	1,035	73	90	98	72	84	104	83	94	63	59	87
Females	1,020	82	90	76	109	92	70	79	89	106	88	80
Lawrence,	490	44	46	40	37	46	50	37	51	37	39	39
Total	252	28	23	22	24	14	14	14	22	19	16	15
Males	238	16	23	23	18	13	23	19	22	18	23	14
Females	821	77	59	74	50	78	71	74	63	61	80	66
Lebanon,	410	34	28	46	19	41	36	39	36	26	36	32
Total	411	43	31	28	31	37	35	35	36	35	44	34
Males	1,097	78	93	114	76	93	71	129	95	88	102	96
Females	587	35	43	64	37	56	57	56	47	51	52	46
Males	1,080	73	84	101	69	92	68	105	82	89	104	98
Females	2,170	168	153	167	173	166	153	204	188	194	196	166
Luzerne,	1,090	91	81	86	93	82	116	93	101	105	95	80
Total	1,016	77	78	86	98	67	76	88	75	97	88	83
Males	1,016	77	78	86	98	67	76	88	75	97	88	83
Females	323	58	60	65	60	60	60	49	57	53	46	54
Lycoming,	323	58	60	65	60	60	60	49	57	53	46	54
Total	346	36	30	34	27	34	33	27	31	31	24	23
Males	421	33	33	38	42	41	44	23	32	40	29	38
Females	238	19	15	23	21	26	28	14	18	17	21	17
Males	183	14	18	13	18	15	16	9	14	23	8	21
Females	591	43	52	57	43	48	52	48	45	50	51	57
Total	304	19	20	29	23	30	27	24	21	21	20	22
Males	465	28	32	35	30	33	32	27	24	23	22	27
Females	249	19	14	21	18	16	24	20	25	20	19	16
Males	216	17	14	21	16	19	11	17	17	22	25	17
Females	258	18	12	25	17	20	20	21	31	26	17	20
Total	138	10	9	10	7	13	13	9	17	14	7	13
Males	120	8	3	15	10	10	7	12	14	12	10	12
Females	1,490	135	165	122	133	148	113	133	138	131	120	113
Total	782	72	68	67	63	69	56	77	71	69	71	60
Males	708	61	57	54	60	79	57	56	67	62	49	53
Females	115	10	8	8	10	20	6	11	14	12	5	6
Total	64	2	3	3	3	3	3	3	4	8	6	4
Males	913	76	74	103	73	63	73	73	71	83	72	64
Females	501	46	34	63	37	39	47	37	35	47	37	33
Males	412	36	46	42	34	38	33	29	35	36	35	31
Females	948	78	77	40	93	87	87	75	86	80	81	83
Total	494	37	36	20	46	46	41	39	48	45	39	43
Males	454	41	41	20	47	41	46	36	38	35	42	29
Females	377	24	29	32	39	38	30	30	30	30	32	23
Total	185	12	15	15	22	15	15	15	17	19	14	11
Males	192	8	14	17	17	20	15	13	20	16	19	14
Females	125	11	9	10	11	8	7	7	15	14	17	11
Total	61	4	2	4	3	3	3	3	3	10	7	2
Males	61	4	2	4	3	3	3	3	3	10	7	2
Females	368	25	41	6	3	3	25	35	37	27	24	34
Males	200	16	26	16	15	13	11	19	15	14	12	14
Females	185	9	16	18	14	15	14	15	22	13	19	10
Total	1,834	149	135	190	157	150	131	152	165	171	158	150
Schuykill,	864	63	71	69	77	64	64	78	81	85	77	63
Males	864	63	71	69	77	64	64	78	81	85	77	63
Females	864	63	71	69	77	64	64	78	81	85	77	63

TABLE 1.—Continued.

	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Snyder,	369	38	19	48	39	25	37	20	38	23	32	28	23
Males,	179	21	10	24	15	15	12	16	20	18	12	9	11
Females,	181	17	9	24	14	13	16	14	18	5	20	19	12
Someract,	1,063	67	86	59	88	80	92	81	104	68	68	70	84
Males,	521	37	41	45	46	39	53	39	52	42	37	48	33
Females,	542	30	42	54	42	42	37	42	52	40	31	22	46
Sullivan,	221	11	13	20	18	17	22	21	19	26	22	13	19
Males,	120	10	12	7	10	10	12	10	10	15	7	6	13
Females,	101	1	1	13	8	7	11	9	9	11	15	7	6
Susquehanna,	277	18	12	27	16	22	21	15	21	11	19	20	28
Males,	171	15	10	17	12	17	11	11	18	11	13	21	11
Females,	122	3	2	10	4	5	10	4	3	13	6	9	18
Tioga,	689	43	57	65	54	54	65	53	63	53	50	60	67
Males,	343	27	24	30	30	19	35	26	30	34	21	36	31
Females,	345	16	33	35	24	35	30	27	33	19	29	24	36
Union,	285	21	17	25	15	23	19	25	35	23	30	26	26
Males,	145	11	11	13	10	11	8	10	20	11	17	6	15
Females,	139	7	6	12	5	12	11	15	15	12	13	20	11
Venango,	411	27	35	36	30	22	32	22	37	58	44	31	36
Males,	212	11	17	23	14	11	16	11	19	35	24	14	17
Females,	199	16	19	13	16	11	16	11	18	23	20	17	19
Warren,	423	42	37	37	37	28	38	36	41	28	37	33	30
Males,	203	25	19	18	19	14	19	13	28	14	14	16	14
Females,	221	17	18	19	18	14	19	23	13	14	23	17	16
Washington,	1,214	81	111	163	131	146	159	163	102	124	113	160	112
Males,	613	41	57	87	41	44	59	48	53	57	56	81	51
Females,	573	41	54	76	41	54	59	48	53	57	56	81	51
Wayne,	363	23	21	23	23	33	21	28	41	39	36	30	38
Males,	189	13	9	16	15	17	11	16	23	17	15	13	19
Females,	177	10	12	7	13	16	13	12	22	22	21	17	19
Westmoreland,	3,644	299	353	300	240	277	225	265	266	290	246	270	223
Males,	1,635	120	129	166	117	159	120	149	139	143	138	139	116
Females,	1,429	89	124	134	123	118	105	116	127	147	108	131	107
Wyoming,	298	15	20	20	15	14	17	13	16	21	23	20	14
Males,	108	6	6	12	6	8	9	8	10	10	13	10	8
Females,	190	7	14	8	9	6	8	5	6	11	10	10	6
York,	1,546	189	129	146	117	121	124	107	137	149	120	122	124
Males,	825	73	71	74	64	67	73	67	69	84	67	67	61
Females,	720	86	58	72	53	54	63	50	68	65	53	55	64

Columbia.	Total.	1	34	103	102	61	33	18	10
	Native.	1	32	97	100	58	34	16	7
	Foreign.		1	6	2	3	4	2	3
Conellsville.	Total.	2	29	51	48	46	29	14	10
	Native.	2	27	44	46	38	23	9	6
	Foreign.		2	7	2	8	6	5	4
Conshohocken.	Total.	4	6	37	31	20	14	10	9
	Native.	4	6	37	31	20	14	10	9
	Foreign.								
Corry.	Total.	3	2	11	8	2	3	6	2
	Native.	3	2	11	8	2	3	6	2
	Foreign.								
Danville.	Total.	10	10	27	24	20	14	13	1
	Native.	10	10	27	24	20	14	13	1
	Foreign.								
Danville.	Total.	17	17	47	44	42	28	10	1
	Native.	17	17	47	44	42	28	10	1
	Foreign.								
Dickson City.	Total.	1	12	49	34	42	24	6	2
	Native.	1	12	49	34	42	24	6	2
	Foreign.								
DuBois.	Total.	1	1	97	123	57	40	10	1
	Native.	1	1	97	123	57	40	10	1
	Foreign.								
Dunmore.	Total.	3	3	34	39	20	15	4	
	Native.	3	3	34	39	20	15	4	
	Foreign.								
Duquesne.	Total.	18	18	38	54	32	38	17	11
	Native.	18	18	38	54	32	38	17	11
	Foreign.								
Easton.	Total.	1	53	154	160	90	71	13	2
	Native.	1	53	154	160	90	71	13	2
	Foreign.								
Edwardsville.	Total.	14	13	40	30	28	25	7	5
	Native.	14	13	40	30	28	25	7	5
	Foreign.								
Erie.	Total.	1,414	96	368	350	292	177	64	23
	Native.	884	67	241	245	190	97	34	11
	Foreign.	530	29	126	134	101	79	30	17
Etna.	Total.	161	10	57	35	30	21	7	2
	Native.	161	10	57	35	30	21	7	2
	Foreign.								
Forest City.	Total.	292	14	82	86	60	48	9	1
	Native.	292	14	82	86	60	48	9	1
	Foreign.								
	Nat. unstated.	23	7	69	73	51	26	7	

Johnsonburg.	Total.	157	19	47	38	26	17	4	1	5
	Native.	53	11	25	19	13	17	1	1	4
	Foreign.	71	1	18	19	13	10	3	1	1
Johnstown.	Nat. unstated.	1								
	Total.	1,235	86	292	200	180	97	30	6	320
	Native.	769	56	182	130	113	66	27	4	150
	Foreign.	410	29	106	122	61	28	3	1	58
Kane.	Nat. unstated.	46	1	4	8	6	3	2	1	21
	Total.	152	20	39	44	25	18	6	6	68
	Native.	98	18	24	27	14	12	3	3	24
	Foreign.	53	2	14	17	11	6	3	3	11
Lancaster.	Nat. unstated.	1								
	Total.	685	54	181	177	139	85	34	3	2
	Native.	601	53	173	165	115	76	26	3	2
	Foreign.	64	1	8	22	14	9	8	3	2
Lansford.	Nat. unstated.	1								
	Total.	192	21	41	51	41	21	11	1	1
	Native.	89	9	15	23	23	14	7	1	1
	Foreign.	103	12	26	28	18	11	4	1	1
Latrobe.	Nat. unstated.	1								
	Total.	247	18	75	71	39	28	14	1	2
	Native.	161	11	55	45	23	20	6	6	1
	Foreign.	86	7	20	26	16	8	8	1	1
Lebanon.	Nat. unstated.	1								
	Total.	397	36	112	109	65	48	17	4	6
	Native.	370	35	109	98	59	46	15	4	4
	Foreign.	27	1	3	11	6	2	2	1	2
Lehighton.	Nat. unstated.	1								
	Total.	120	10	31	33	29	13	4	1	1
	Native.	105	10	25	28	25	12	4	1	1
	Foreign.	15	1	6	4	4	1	1	1	1
Lewistown.	Nat. unstated.	1								
	Total.	238	26	71	64	48	27	7	5	5
	Native.	222	25	71	52	45	26	7	7	7
	Foreign.	6	1	2	2	3	1	1	1	1
Lock Haven.	Nat. unstated.	1								
	Total.	162	8	35	46	34	21	13	1	4
	Native.	145	8	33	39	31	19	11	1	3
	Foreign.	17	1	2	7	3	2	2	1	1
McKeesport.	Nat. unstated.	1								
	Total.	1,499	93	437	384	257	160	46	6	28
	Native.	788	58	183	153	127	56	20	6	15
	Foreign.	618	35	251	225	129	104	26	6	11
McKees Rocks.	Nat. unstated.	3								
	Total.	293	21	101	87	41	24	11	1	3
	Native.	134	12	50	36	20	8	5	5	8
	Foreign.	156	9	51	51	21	16	6	6	3
Mahanoy City.	Nat. unstated.	1								
	Total.	457	13	39	102	87	39	24	6	3
	Native.	162	8	64	61	49	32	11	4	1
	Foreign.	166	5	31	41	38	7	13	2	2
Meadville.	Nat. unstated.	1								
	Total.	212	17	49	47	35	23	6	1	25
	Native.	176	14	44	42	32	27	6	1	14
	Foreign.	25	3	4	5	3	4	2	1	11
	Nat. unstated.	11	1	1						10

TABLE 2.—Births by Nativity and Ages of Mothers—Continued.

	Total at all ages.	Under 15.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	Over 45.	Ages un- stated.
Middletown.										
Total.....	123	11	43	36		24	11	3		1
Native.....	105	10	36	24		24	8	3		1
Foreign.....	27	1	7	6		10	3			
Nat. unstated.....	1									
Millvale.										
Total.....	228	8	59	62		46	34	13	2	5
Native.....	132	4	45	42		25	13	2		1
Foreign.....	96	4	14	20		20	21	11	2	4
Nat. unstated.....										
Milton.										
Total.....	164	21	40	49		27	16	9	2	
Native.....	132	21	40	41		27	16	9	2	
Foreign.....	2			2						
Nat. unstated.....										
Minersville.										
Total.....	133	10	39	56		41	17	9	1	
Native.....	99	5	25	26		21	7	5		
Foreign.....	104	5	34	30		20	10	4	1	
Nat. unstated.....										
Monongahela.										
Total.....	192	25	64	48		31	19	5		
Native.....	138	19	46	31		22	15			
Foreign.....	53	6	16	13		9	4	5		
Nat. unstated.....	1									
Mt. Carmel.										
Total.....	431	29	133	111		80	50	20	2	12
Native.....	283	23	79	68		49	25	17	1	1
Foreign.....	188	13	54	52		31	25	3	1	9
Nat. unstated.....	5									
Mt. Pleasant.										
Total.....	180	18	54	54		23	13	15		
Native.....	113	14	36	33		15	8	8		
Foreign.....	67	4	18	21		8	9	7		
Nat. unstated.....										
Nanticoke.										
Total.....	585	57	177	154		82	77	34	3	1
Native.....	173	33	69	34		21	10	6		
Foreign.....	412	24	108	120		61	67	28	3	1
Nat. unstated.....										
New Brighton.										
Total.....	27	19	67	45		33	39	8	1	4
Native.....	183	16	61	45		51	22	9	1	4
Foreign.....	23	1	6	3			5			
Nat. unstated.....										
New Castle.										
Total.....	776	78	237	201		158	72	23	3	4
Native.....	559	65	193	147		112	53	13		
Foreign.....	156	13	43	51		46	19	10	1	
Nat. unstated.....	1									
Norristown.										
Total.....	425	28	114	108		91	53	20	1	10
Native.....	364	26	104	93		76	40	18	1	1
Foreign.....	56	2	8	15		15	11	2		8
Nat. unstated.....	5		2			1	2			

North Braddock,	420	1	27	128	112	81	53	18	1	1
Total,	179			60	46	32	21	5		
Native,	241	1	12	66	66	49	32	13	1	1
Foreign,										
Nat. unstated,										
Oil City,	310		16	68	84	77	43	14		4
Total,	245		17	6	16	9	38	5		4
Native,	44		1			1	1			1
Foreign,	3									
Nat. unstated,										
Old Forge,	435		38	134	110	71	55	22	8	1
Total,	67		8	21	19	9	8	2		
Native,	365		30	114	91	61	46	19	3	1
Foreign,										
Nat. unstated,										
Olyphant,	174		13	41	42	41	25	12		
Total,	65		3	16	17	13	11	6		
Native,										
Foreign,	109		10	26	25	28	14	6		
Nat. unstated,										
Philadelphia,	33,456	13	1,927	9,088	9,150	6,770	1,011	1,257	184	1,138
Total,	13,475	12	1,475	5,988	5,100	2,193	2,130	82	64	1,898
Native,	11,376		479	3,398	3,998	3,085	2,013	688	70	572
Foreign,	208	1	17	40	44	40	18	9		45
Nat. unstated,										
Phoenixville,	393		17	100	75	58	27	14	1	4
Total,	144		7	35	41	34	14		1	
Native,	158		10	64	37	24	13	6		4
Foreign,										
Nat. unstated,										
Pittsburg,	1			1						
Total,	7,565		339	1,685	1,592	1,147	664	243	17	1,898
Native,	3,582		212	894	851	672	331	106	8	858
Foreign,	3,580		122	754	724	536	324	137	9	974
Nat. unstated,	123		6	17	17	9	9			
Pittston,	428		11	170	152	82	29	12	2	18
Total,	164		6	32	43	30	14			8
Native,	164		6	38		32	23	5		8
Foreign,										
Nat. unstated,										
Plymouth,	387		24	117	98	61	49	24	3	11
Total,	221		17	72	54	34	24	11		9
Native,	166		7	45	44	27	25	13	3	2
Foreign,										
Nat. unstated,										
Pottstown,	296		43	74	63	62	29	18	1	6
Total,	240		41	63	55	47	25	13	1	5
Native,	46		2	11	8	15	4	5		1
Foreign,										
Nat. unstated,										
Pottsville,	336		15	53	65	73	47	22	1	
Total,	283		11	73	76	62	47	17	1	
Native,	53		1	10	19	11	7	5		
Foreign,										
Nat. unstated,										
Punxsutawney,	183		11	51	48	35	28	3		6
Total,	150		10	43	42	25	23	2		4
Native,	31		1	8	6	10	4	1		1
Foreign,										
Nat. unstated,										
Reading,	2,187		122	803	573	311	245	91	12	30
Total,	1,776		100	685	466	243	188	79	7	8
Native,	411		22	118	107	68	57	12	5	22
Foreign,										
Nat. unstated,										
Rochester,	156		17	93	51	39	16	3	4	2
Total,	124		15	44	27	23	13	1		2
Native,	24		2	7	4	6	3	2		
Foreign,										
Nat. unstated,	3			2						1

Sunbury.	Total.	294	29	108	51	41	28	11	2
	Native.	287	28	107	50	1	27	10	2
	Foreign.	7	1	1	1				
Tamaqua.	Total.	196	13	63	62	23	26	8	1
	Native.	185	12	61	60	20	24	7	1
	Foreign.	11	1	2	2	3	2	1	
Tarentum.	Total.	218	12	68	68	41	31	5	3
	Native.	129	6	38	41	22	18	3	1
	Foreign.	88	6	30	17	19	13	2	1
Titusville.	Total.	154	11	44	46	33	10	7	1
	Native.	125	11	38	40	26	6	4	1
	Foreign.	29		6	6	7	5	3	
Tyrone.	Total.	190	26	58	51	34	14	5	1
	Native.	185	26	57	48	33	14	5	1
	Foreign.	5		1	3	1			
Uniontown.	Total.	283	20	98	82	44	21	10	7
	Native.	228	17	73	64	33	17	9	1
	Foreign.	56	3	25	18	5	4	1	
Warren.	Total.	224	20	68	68	35	33	9	1
	Native.	163	17	38	46	28	30	4	
	Foreign.	61	3	30	22	17	13	5	
Washington.	Total.	343	32	99	99	68	34	9	1
	Native.	286	30	80	88	54	24	8	1
	Foreign.	56	1	19	11	14	10	1	
Waynesboro.	Total.	179	18	63	43	24	26	3	1
	Native.	177	18	63	42	24	26	3	1
	Foreign.	2			1				
West Chester.	Total.	296	13	45	61	43	32	8	3
	Native.	183	13	41	57	33	28	7	2
	Foreign.	25		4	7	8	4	1	1
West Pittston.	Total.	119	7	35	26	20	12	6	1
	Native.	83	2	24	25	16	7	4	
	Foreign.	36	2	11	11	4	5	2	1
Wilkes-Barre.	Total.	1,401	82	341	385	331	189	61	5
	Native.	893	52	226	249	226	107	27	1
	Foreign.	506	30	115	115	105	72	34	4
Wilkesburg.	Total.	298	31	84	108	75	39	10	20
	Native.	208	20	67	87	61	24	7	13
	Foreign.	57	1	10	20	11	3	3	5
Williamsport.	Total.	576	48	168	156	104	58	21	18
	Native.	526	1	147	145	96	51	14	1
	Foreign.	49	2	5	11	8	7	7	9
	Native.	487	2	163	144	96	51	14	1
	Foreign.	9							

Columbia,	Total,	368	1	34	103	103	61	29	18	10
	Native,	344	1	32	97	100	55	34	15	7
	Foreign,	19		1	6	3	6	4	3	
Connelleville,	Total,	258		27	61	75	46	23	14	10
	Native,	252		26	61	58	35	23	9	6
	Foreign,	62		2	7	20	11	6	5	4
Conshohocken,	Total,	121		6	37	31	20	14	10	2
	Native,	89		4	36	23	18	3	3	2
	Foreign,	37		2	11	8	2	3	6	1
Corry,	Total,	89		10	27	24	20	14	3	2
	Native,	89		9	27	20	17	13	3	1
	Foreign,	10	6	1	4		3	1	1	
Danville,	Total,	185		17	47	37	42	29	10	1
	Native,	171		17	41	35	39	26	8	1
	Foreign,	13			3		3	2	2	
Dickson City,	Total,	170		12	49	34	42	24	6	1
	Native,	58		6	15	14	16	4	1	2
	Foreign,	112		5	34	20	26	20	6	2
DuBois,	Total,	355		27	97	123	57	40	10	1
	Native,	240		24	63	84	37	25	6	1
	Foreign,	115		3	34	39	20	15	4	
Dunmore,	Total,	315		13	82	68	62	38	17	3
	Native,	147		7	42	38	39	20	9	1
	Foreign,	150		7	38	54	23	18	8	2
Duquesne,	Total,	510		4	2	1				
	Native,	196		27	140	149	83	57	15	1
	Foreign,	313		3	95	1	47	37	8	1
Easton,	Total,	536		53	154	160	90	71	13	2
	Native,	470		48	140	128	80	58	12	3
	Foreign,	74		5	13	32	10	13	1	
Edwardsville,	Total,	149		13	40	30	23	25	7	1
	Native,	45		8	26	23	21	18	6	1
	Foreign,	104								
Erle,	Total,	1,414		96	368	380	292	177	64	23
	Native,	681		67	241	245	190	97	34	11
	Foreign,	520		29	125	134	101	79	30	17
Etna,	Total,	161		10	57	33	30	21	7	2
	Native,	74		6	22	50	11	11	4	2
	Foreign,	87		4	34	15	19	3	3	2
Forest City,	Total,	287		14	92	82	60	28	9	1
	Native,	52		7	23	9	9	2	2	
	Foreign,	235		7	69	73	51	26	7	

Johnsonburg.	Total.	157	19	47	38	26	17	4	1	5
	Native.	83	11	28	19	13	7	1	1	4
	Foreign.	71	7	18	19	13	10	3	1	1
Johnstown.	Nat. unstatd.	1	1			1				2
	Total.	1,235	86	292	300	180	97	25	5	239
	Native.	769	56	182	170	113	66	27	4	130
	Foreign.	410	29	106	122	61	28	6	1	68
Kane.	Nat. unstatd.	46	4	4	8	6	2	2	1	21
	Total.	132	20	39	44	25	18	6		
	Native.	86	16	24	27	14	12	3		
	Foreign.	53	2	14	17	11	6	3		
Lancaster.	Nat. unstatd.									
	Total.	685	181	181	177	129	85	24	3	2
	Native.	601	53	173	158	115	76	26	3	2
	Foreign.	64	1	8	23	14	9	8		
Lansford.	Nat. unstatd.									
	Total.	192	21	41	51	41	25	11	1	1
	Native.	89	9	15	23	23	14	4		
	Foreign.	103	12	26	28	18	11	7	1	
Latrobe.	Nat. unstatd.									
	Total.	247	18	75	71	39	28	14		2
	Native.	161	11	65	45	33	20	6		1
	Foreign.	86	7	20	26	16	8	8		1
Lebanon.	Nat. unstatd.									
	Total.	367	36	112	108	65	48	17	4	6
	Native.	370	35	109	98	59	46	15	4	4
	Foreign.	25	1	3	11	6	2	2		
Lehighton.	Nat. unstatd.									
	Total.	120	10	31	33	29	13	4		2
	Native.	105	10	25	29	25	12	4		
	Foreign.	15	6	6	4	4	1			
Lewistown.	Nat. unstatd.									
	Total.	238	26	71	54	48	27	7		5
	Native.	232	25	71	52	45	26	7		5
	Foreign.	6			2	3	1			
Lock Haven.	Nat. unstatd.									
	Total.	162	8	35	46	34	21	13	1	4
	Native.	145	8	33	39	31	19	11	1	3
	Foreign.	17		2	7	3	2	2		1
McKeesport.	Nat. unstatd.									
	Total.	1,409	93	435	384	257	160	46	6	23
	Native.	618	58	183	153	127	56	20		15
	Foreign.	788	35	251	225	130	104	26	6	11
McKees Rocks.	Nat. unstatd.									
	Total.	293	21	101	87	41	24	11		3
	Native.	134	13	50	36	20	8	6		3
	Foreign.	159	9	51	51	21	16	5		3
Mahanoy City.	Nat. unstatd.									
	Total.	457	12	99	107	87	59	21	5	19
	Native.	292	9	64	61	49	32	11	1	5
	Foreign.	167	2	31	41	36	25	13	4	12
Meadville.	Nat. unstatd.									
	Total.	212	17	49	47	35	27	8	1	28
	Native.	176	14	44	42	32	23	6	1	14
	Foreign.	25	3	4	5	3	4	2		14
	Nat. unstatd.	11	1	1						10

TABLE 2.—Births by Nativity and Ages of Mothers—Continued.

	Total at all ages.	Under 15.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	Over 45.	Ages un- stated.
Middletown.										
Total.....	123	.....	11	43	36	24	11	3	.....	1
Native.....	105	.....	10	36	24	24	8	3	.....	1
Foreign.....	17	.....	1	7	6	10	2	.....	.....	.....
Nat. unstated.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Millvale.										
Total.....	228	.....	8	59	62	45	34	13	2	5
Native.....	132	.....	4	45	42	23	13	11	2	1
Foreign.....	96	.....	.....	14	20	20	21	11	2	4
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milton.										
Total.....	164	.....	21	40	49	27	16	9	2	.....
Native.....	152	.....	21	40	47	27	16	9	2	.....
Foreign.....	12	.....	.....	.....	2	.....	.....	.....	.....	.....
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Minersville.										
Total.....	193	.....	10	39	56	41	17	9	1	.....
Native.....	59	.....	5	25	26	21	7	5	.....	.....
Foreign.....	164	.....	5	34	30	20	10	4	1	.....
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monongahela.										
Total.....	192	.....	25	64	48	31	19	5	.....	.....
Native.....	138	.....	19	48	34	22	15	.....	.....	.....
Foreign.....	54	.....	6	16	13	9	4	5	.....	.....
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mt. Carmel.										
Total.....	451	.....	39	133	118	60	50	20	2	12
Native.....	261	.....	26	79	66	49	25	12	.....	.....
Foreign.....	188	.....	13	54	52	30	25	7	1	6
Nat. unstated.....	16	.....	.....	.....	.....	1	.....	.....	.....	.....
Mt. Pleasant.										
Total.....	180	.....	18	54	54	23	13	15	.....	.....
Native.....	113	.....	14	36	33	15	4	8	.....	.....
Foreign.....	67	.....	4	18	21	9	9	7	.....	.....
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nanticoke.										
Total.....	585	.....	57	177	154	82	71	34	3	1
Native.....	333	.....	33	69	34	21	10	6	.....	.....
Foreign.....	412	.....	24	108	120	61	67	28	3	1
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Brighton.										
Total.....	157	.....	12	67	45	37	20	8	1	4
Native.....	153	.....	12	67	45	37	20	8	1	4
Foreign.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nat. unstated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Castle.										
Total.....	775	.....	78	237	201	153	72	23	3	4
Native.....	589	.....	65	193	147	112	53	13	2	4
Foreign.....	186	.....	13	43	54	46	19	10	1	.....
Nat. unstated.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norristown.										
Total.....	425	.....	28	114	108	91	53	20	1	10
Native.....	364	.....	25	104	93	76	40	18	1	1
Foreign.....	66	.....	2	8	15	15	11	2	.....	.....
Nat. unstated.....	5	.....	.....	2	.....	1	2	.....	.....	.....

North Braddock,	420	1	27	128	112	81	53	18	1	1
Total,	179			69	46	33	21	5		
Native,	241	1	12	66	66	49	33	1	1	
Foreign,										
Nat. unstated,										
Oil City,	310		18	83	63	77	43	14		6
Total,	265			63	63	67	28	5		1
Native,	42		1	6	18	9	1			1
Foreign,										
Nat. unstated,	3					1			3	1
Old Forge,	438		38	138	110	71	55	22		1
Total,	67		8	21	19	9	8	2		
Native,	365		30	114	91	61	46	19	3	1
Foreign,										
Nat. unstated,	174		13	41	42	41	25	12		
Total,	65		3	15	17	13	11	6		
Native,	109		10	28	25	23	14	6		
Foreign,										
Nat. unstated,										
Philadelphia,	33,556	13	1,927	9,038	9,160	8,770	4,011	1,287	134	1,118
Total,	18,379	12	1,437	5,628	5,130	3,648	1,890	572	64	572
Native,	14,278		479	3,338	3,086	3,063	2,013	686	70	572
Foreign,										
Nat. unstated,	208	1	11	40	44	58	27	14	1	45
Total,	144		17	100	76	58	27	14	1	8
Native,	158		7	35	41	34	14	8	1	4
Foreign,			10	64	37	24	13	6		4
Nat. unstated,	1			1						
Pittsburg,	7,565		339	1,665	1,532	1,147	664	243	17	1,898
Total,	3,862		212	894	851	672	331	106	8	858
Native,	3,430		172	754	714	536	324	137	9	944
Foreign,										
Nat. unstated,	423		14	140	137	9	6			14
Total,	161		11	110	129	32	63	12	2	19
Native,			6	72	55	50	35	7		8
Foreign,			5	38	43	32	28	5	3	5
Nat. unstated,	3									
Plymouth,	387		24	117	98	61	49	24	3	3
Total,	221		17	72	54	34	24	11		9
Native,	165		7	45	44	27	25	13	3	2
Foreign,										
Nat. unstated,										
Pottstown,	296		43	74	53	62	29	18	1	6
Total,	240		41	63	56	47	25	13	1	5
Native,	46		2	11	8	15	4	3		1
Foreign,										
Nat. unstated,										
Pottsville,	236		15	53	57	73	47	22	1	
Total,	283		14	73	79	62	40	17	1	
Native,	53		1	10	13	11	7	5		
Foreign,										
Nat. unstated,										
Punkstutawney,	183		11	51	48	36	28	3		6
Total,	150		10	43	42	25	23	2	4	4
Native,	31		1	8	6	10	4	1		1
Foreign,										
Nat. unstated,										
Reading,	2,187		122	833	573	311	245	91	12	30
Total,	1,776		100	685	464	243	188	79	7	8
Native,	411		22	118	107	68	51	12	5	22
Foreign,										
Nat. unstated,										
Rochester,	156		17	53	31	29	16	3		3
Total,	124		15	42	27	23	13	1	4	2
Native,	24		2	7	4	6	3	2		
Foreign,										
Nat. unstated,	3			2						1

Sunbury.	Total.	994	29	102	51	41	28	11	2
	Native.	287	23	110	58	1	27	10	2
	Foreign.	7	1	2	3	1	1	1	1
Tamaqua.	Total.	196	13	63	62	23	26	8	1
	Native.	185	12	61	60	20	24	7	1
	Foreign.	11	1	2	2	3	2	1	1
Tarentum.	Total.	218	12	68	68	41	31	5	3
	Native.	129	6	38	41	22	18	3	1
	Foreign.	88	6	30	17	19	13	2	1
Titusville.	Total.	174	11	44	48	33	10	7	1
	Native.	154	11	38	43	29	6	4	1
	Foreign.	20	1	6	5	4	4	3	1
Tyrone.	Total.	190	35	57	51	34	14	5	1
	Native.	185	35	57	48	33	14	5	1
	Foreign.	5	1	1	3	1	1	1	1
Uniontown.	Total.	283	20	98	82	44	21	10	7
	Native.	226	17	73	64	38	17	9	1
	Foreign.	56	3	25	18	5	4	1	1
Warren.	Total.	324	30	49	66	55	33	9	1
	Native.	163	17	38	38	38	20	4	1
	Foreign.	171	13	11	22	17	13	5	1
Washington.	Total.	343	32	96	99	68	34	9	1
	Native.	286	30	80	88	54	24	8	1
	Foreign.	56	1	19	11	14	10	1	1
Waynesboro.	Total.	179	18	63	48	24	26	3	1
	Native.	177	18	63	42	24	26	3	1
	Foreign.	2	1	1	1	1	1	1	1
West Chester.	Total.	206	13	45	61	43	32	8	1
	Native.	183	13	41	57	38	29	7	1
	Foreign.	23	1	4	4	5	3	1	1
West Pittston.	Total.	119	7	35	28	20	12	6	1
	Native.	83	5	24	25	16	7	4	1
	Foreign.	36	2	11	11	4	5	2	1
Wilkes-Barre.	Total.	1,401	82	341	395	331	190	61	5
	Native.	52	1	27	29	226	107	1	4
	Foreign.	346	30	115	145	105	72	34	4
Wilkesburg.	Total.	293	21	84	108	77	39	10	1
	Native.	268	20	83	99	64	23	7	1
	Foreign.	25	1	10	9	11	16	3	1
Williamsport.	Total.	576	49	168	156	104	58	21	18
	Native.	526	1	47	145	96	51	14	1
	Foreign.	49	2	5	31	8	7	7	9
	Native.	1	1	1	1	1	1	1	1

Bradford.	Total.....	677	70	198	152	122	77	31	3
	Native.....	640	70	183	144	123	75	20	3
	Foreign.....	12	1	15	8	2	2	1	5
Bucks.	Nat. unstatd.	862	73	207	204	165	130	65	9
	Total.....	781	70	196	185	143	113	58	8
	Native.....	76	3	11	17	22	16	6	1
	Foreign.....	3	1	1	2	1	1	1	1
Butler.	Nat. unstatd.	502	66	251	216	191	119	45	9
	Total.....	716	56	189	162	138	105	37	8
	Native.....	16	3	5	13	23	14	8	1
	Foreign.....	10	1	2	2	1	1	1	1
Cambria.	Nat. unstatd.	1,457	167	365	353	273	183	93	15
	Total.....	924	106	235	214	174	118	33	8
	Native.....	51	130	139	119	98	73	31	6
	Foreign.....	529	1	1	1	1	2	2	4
Cameron.	Nat. unstatd.	97	17	31	16	17	13	2	1
	Total.....	85	16	26	15	14	12	2	1
	Native.....	12	1	5	1	3	1	1	1
	Foreign.....	1	1	1	1	1	1	1	1
Carbon.	Nat. unstatd.	564	67	167	154	88	58	25	2
	Total.....	384	43	112	96	63	44	18	1
	Native.....	180	19	55	55	23	14	7	1
	Foreign.....	1	1	1	1	1	1	1	1
Centre.	Nat. unstatd.	751	72	208	173	140	110	37	6
	Total.....	670	66	198	151	120	99	20	5
	Native.....	7	5	13	22	19	10	7	4
	Foreign.....	4	1	1	1	1	1	1	1
Chester.	Nat. unstatd.	1,172	91	265	307	244	146	73	8
	Total.....	1,029	90	231	274	221	123	60	14
	Native.....	126	1	34	32	22	21	13	2
	Foreign.....	6	1	1	1	1	2	1	1
Ciarion.	Nat. unstatd.	637	48	163	141	126	100	39	6
	Total.....	397	47	104	134	128	97	38	5
	Native.....	39	1	9	7	8	3	1	1
	Foreign.....	1	1	1	1	1	1	1	1
Clearefield.	Nat. unstatd.	1,611	172	453	366	266	202	118	14
	Total.....	1,059	118	313	294	161	96	63	10
	Native.....	798	34	130	142	106	105	55	6
	Foreign.....	1	1	1	1	1	1	1	1
Clinton.	Nat. unstatd.	268	39	91	58	34	26	4	3
	Total.....	235	38	78	48	29	32	4	3
	Native.....	22	1	12	10	5	4	1	1
	Foreign.....	1	1	1	1	1	1	1	1
Columbia.	Nat. unstatd.	515	51	186	156	107	66	24	2
	Total.....	415	49	126	116	96	63	20	2
	Native.....	38	2	10	8	11	3	4	1
	Foreign.....	1	1	1	1	1	1	1	1
Crawford.	Nat. unstatd.	578	57	117	136	127	81	32	8
	Total.....	512	56	116	133	121	78	31	7
	Native.....	1	1	1	1	1	1	1	1
	Foreign.....	1	1	1	1	1	1	1	1
Cumberland.	Nat. unstatd.	13	1	1	3	5	2	1	1
	Total.....	577	47	151	141	93	85	27	3
	Native.....	6	1	150	137	90	94	26	3
	Foreign.....	1	1	1	1	1	1	1	1
	Nat. unstatd.	7	1	1	2	1	1	1	1

TABLE 2.—Births by Nativity and Ages of Mothers—Continued.

	Total at all ages.	Under 15.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	Over 45.	Ages un- stated.
Dauphin.	Total..... Foreign..... Nat. unstated.....	847 737 106	2 2 4	64 76 8	219 191 28	212 185 28	158 138 20	112 96 16	42 37 5	12 5 3
Delaware.	Total..... Native..... Foreign..... Nat. unstated.....	539 411 125 2	18 15 3 1	117 106 11 124	116 103 42 145	146 103 42 1	122 93 29 104	91 61 30 78	27 22 5 28	3 2 1 2
Elk.	Total..... Native..... Foreign..... Nat. unstated.....	536 305 131 4	1 1 1 1	53 39 14 51	124 77 15 116	145 77 68 108	104 63 41 98	78 37 41 69	28 13 15 22	2 1 1 4
Erie.	Total..... Native..... Foreign..... Nat. unstated.....	443 39 10 1	39 36 3 1	121 124 6 1	116 108 6 2	116 108 6 2	98 54 13 394	69 57 7 239	26 22 1 103	4 4 1 19
Fayette.	Total..... Native..... Foreign..... Nat. unstated.....	2,190 1,422 758 1	1 1 1 1	660 409 248 3	552 370 182 50	552 370 182 50	394 240 144 38	239 148 90 23	103 64 39 6	31 12 6 1
Forest.	Total..... Native..... Foreign..... Nat. unstated.....	137 137 1 1	23 23 1 1	54 54 2 2	48 48 2 2	48 48 2 2	31 31 1 1	23 23 1 1	6 6 1 1	1 1 1 1
Franklin.	Total..... Native..... Foreign..... Nat. unstated.....	853 874 5 4	90 79 1 1	205 202 2 2	210 203 1 1	210 203 1 1	185 184 1 40	149 148 1 36	48 48 1 13	4 4 1 10
Fulton.	Total..... Native..... Foreign..... Nat. unstated.....	238 232 2 4	1 1 1 1	21 21 56 105	60 60 60 83	60 60 83 83	39 39 1 72	36 36 1 69	13 13 2 16	1 1 2 2
Greene.	Total..... Native..... Foreign..... Nat. unstated.....	375 367 8 8	1 1 1 1	27 27 4 4	105 101 4 4	83 83 2 2	72 72 1 51	69 69 4 65	16 16 3 22	2 2 3 3
Huntingdon.	Total..... Native..... Foreign..... Nat. unstated.....	438 24 6 1	60 47 2 1	125 120 5 5	100 93 6 1	100 93 6 1	81 77 4 185	65 60 4 130	22 22 1 45	3 3 1 5
Indiana.	Total..... Native..... Foreign..... Nat. unstated.....	1,007 760 283 7	113 82 31 1	297 212 83 2	241 167 76 1	241 167 76 1	185 138 45 2	130 101 29 2	45 16 16 2	11 6 2 2

Jefferson.	Total.	1,259	3	123	3-9	275	216	171	13	7	21
	Native.	728	1	83	228	146	136	83	35	4	12
	Foreign.	531	2	39	141	129	78	87	40	3	6
	Nat. unstatd.	6					2	1			3
Junata.	Total.	311		31	73	84	54	49	15	4	1
	Native.	306		31	73	83	53	48	14	3	1
	Foreign.	3					1	1			
	Nat. unstatd.	2									
Lackawanna.	Total.	283		14	73	68	48	36	10	1	26
	Native.	217		9	60	58	47	35	9		18
	Foreign.	63		5	11	9	11	17	1		8
	Nat. unstatd.	3									
Lancaster.	Total.	2,083	1	185	500	551	411	279	127	7	14
	Native.	2,023	1	183	493	544	404	276	125	7	11
	Foreign.	23		2	7	7	7	3	1		3
	Nat. unstatd.	3									1
Lawrence.	Total.	490		34	130	122	90	76	32	1	1
	Native.	389		35	107	99	69	61	24	3	1
	Foreign.	100		9	23	23	21	15	8		1
	Nat. unstatd.	1									1
Lebanon.	Total.	821		106	242	190	140	103	31	5	4
	Native.	777		102	227	174	133	101	31		
	Foreign.	43		4	15	16	7	2			
	Nat. unstatd.	1					1				
Lehigh.	Total.	1,097	1	134	346	255	175	127	43	7	9
	Native.	859	1	125	259	201	148	103	39	6	7
	Foreign.	235		9	87	54	27	23	4	1	
	Nat. unstatd.	3						1			2
Luzerne.	Total.	2,105	1	175	582	551	374	276	117	11	19
	Native.	1,618	1	116	293	261	177	119	41	6	5
	Foreign.	1,084		58	288	290	197	155	76	6	14
	Nat. unstatd.	4		1	1			3			
Lycoming.	Total.	688		61	155	161	141	92	30	4	24
	Native.	595		55	146	140	130	89	26	4	14
	Foreign.	87		6	9	16	11	12	4		9
	Nat. unstatd.	1									7
McKean.	Total.	431		43	113	116	71	45	25	1	6
	Native.	300		40	86	87	48	23	9	1	7
	Foreign.	116		2	26	28	23	22	16		
	Nat. unstatd.	15		1	1	1					1
Mercer.	Total.	591		34	140	163	111	90	35	4	14
	Native.	527		30	129	147	97	79	33	2	10
	Foreign.	56		4	11	15	12	11	2	2	
	Nat. unstatd.	8		1	1	1	2				4
Mifflin.	Total.	465		40	123	106	103	89	25	2	7
	Native.	454		38	121	104	102	86	24	2	
	Foreign.	9		2	2		1	3	1		
	Nat. unstatd.	2									
Monroe.	Total.	298		32	62	60	40	11	16	2	5
	Native.	220		31	60	59	40	9	16	2	3
	Foreign.	6		1	1	1		2			1
	Nat. unstatd.	2									
Montgomery.	Total.	1,490		98	364	381	316	235	74	6	16
	Native.	1,157		86	314	291	253	177	43	4	9
	Foreign.	296		12	48	89	60	58	20	2	6
	Nat. unstatd.	7		2		1	1		1		3

Susquehanna.	Total.	297	28	79	65	59	34	33	2	7.
	Native.	280	26	78	60	55	3	22	2	6.
	Foreign.	17	2	1	5	4	3	1		
Tioga.	Total.	689	58	201	155	113	96	41	6	14
	Native.	51	58	187	134	81	75	27	5	13
	Foreign.	109	7	14	19	30	21	17	1	
Union.	Total.	285	30	86	66	45	42	21	2	1
	Native.	283	28	85	65	45	42	21	2	2
	Foreign.	2	2	1	1					
Venango.	Total.	411	39	113	103	73	54	20	3	6
	Native.	353	38	106	99	69	50	17	3	4
	Foreign.	58	1	7	4	4	4	3		
Warren.	Total.	434	26	118	92	82	70	28	4	2
	Native.	310	25	96	73	60	41	12	2	1
	Foreign.	112	1	22	19	22	29	16	2	1
Washington.	Total.	1,224	112	383	324	290	147	49	1	2
	Native.	832	80	250	205	148	110	32	1	8
	Foreign.	385	30	112	117	71	36	17	1	6
Wayne.	Total.	366	32	86	83	79	48	30	1	4
	Native.	323	25	77	70	66	40	26	1	4
	Foreign.	43	7	9	13	13	8	2		
Westmoreland.	Total.	3,064	253	844	796	553	374	139	14	75
	Native.	1,620	153	455	381	305	227	72	6	19
	Foreign.	1,403	98	384	414	256	146	66	8	37
Wyoming.	Total.	298	16	5	4	2	1	1		19
	Native.	290	16	69	60	34	20	8		
	Foreign.	8	1	3	1	2	2	2		
York.	Total.	1,341	164	395	369	269	230	89	13	19
	Native.	1,152	163	393	363	263	229	89	13	18
	Foreign.	189	1	2	1	3	1			
Total rural exclusive of all incorpo- rated municipalities.	Total.	53,581	4,932	14,441	13,714	9,896	7,102	2,914	332	761
	Native.	42,691	4,238	11,673	10,245	7,867	5,580	2,218	268	476
	Foreign.	10,669	3	2,765	2,884	1,969	1,496	686	61	139
	Native.	311	21	43	45	40	26	10	3	128

TABLE 3.

Births by nativity of mothers and number of child of mothers for the entire State, for incorporated municipalities having more than 5,000 population, for certain groups of municipalities having less than 5,000 population and for the rural sections of each county.

	Total.	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.
Entire State,	167,255	44,094	33,696	24,768	17,260	12,522	9,351	6,749	4,755	3,370	2,349	1,371
Native,	117,223	33,227	24,533	17,370	11,694	8,354	6,157	4,399	3,060	2,173	1,506	828
Foreign,	48,996	10,591	8,992	7,275	5,468	4,087	3,173	2,366	1,756	1,181	890	594
Nat. unstat'd,	1,046	266	171	123	108	51	51	44	29	16	12	9
Total,	2,503	644	434	299	214	143	111	83	56	30	23	18
Native,	1,566	403	263	180	102	71	46	32	27	15	10	6
Foreign,	1,573	233	193	139	111	71	65	51	29	15	13	12
Nat. unstat'd,	18	9	1	1	1	1	1	2	2	2	2	1
Total,	1,077	351	251	150	98	67	55	37	28	18	7	4
Native,	1,807	271	187	105	74	46	27	26	22	15	6	4
Foreign,	267	79	64	45	23	21	8	10	6	3	1	1
Nat. unstat'd,	3	1	1	1	1	1	1	1	1	1	1	1
Total,	1,269	335	299	202	110	89	53	37	23	23	15	6
Native,	1,058	347	249	170	94	68	43	33	16	16	9	6
Foreign,	299	47	45	32	16	21	15	4	7	7	6	1
Nat. unstat'd,	2	2	1	1	1	1	1	1	1	1	1	1
Total,	165	34	35	16	24	10	9	9	8	7	2	4
Native,	108	23	21	13	16	7	5	6	6	5	5	3
Foreign,	57	11	14	3	8	3	4	3	2	2	2	1
Nat. unstat'd,	187	62	40	20	20	10	9	7	6	5	2	2
Total,	166	58	39	19	17	9	4	5	6	4	2	2
Native,	19	1	1	1	3	1	5	2	1	1	1	1
Foreign,	19	1	1	1	1	1	1	1	1	1	1	1
Nat. unstat'd,	367	64	67	32	32	26	16	8	3	2	7	3
Total,	173	43	55	21	18	13	10	1	1	1	1	1
Native,	89	20	12	10	12	6	2	2	2	2	2	1
Foreign,	5	1	1	1	2	1	1	1	1	1	1	1
Nat. unstat'd,	245	83	42	36	26	11	16	13	6	2	4	4
Total,	223	78	40	33	22	10	12	11	6	1	1	1
Native,	22	5	2	3	4	1	3	2	1	1	1	1
Foreign,	22	5	2	3	4	1	3	2	1	1	1	1
Nat. unstat'd,	144	58	25	22	14	5	7	5	3	2	1	1
Total,	142	57	26	21	14	5	7	5	3	2	1	1
Native,	2	1	1	1	1	1	1	1	1	1	1	1
Foreign,	2	1	1	1	1	1	1	1	1	1	1	1
Nat. unstat'd,	828	213	213	135	81	60	45	32	18	18	9	1
Total,	185	61	47	25	17	12	7	7	1	8	4	1
Native,	643	152	166	110	64	48	38	25	17	15	6	1
Foreign,	185	61	47	25	17	12	7	7	1	8	4	1
Nat. unstat'd,	643	152	166	110	64	48	38	25	17	15	6	1

Bradford,	Total.....	362	115	67	41	28	21	10	7	1	4	2	2
	Native.....	235	93	54	32	20	14	6	5	1	1	2	2
	Foreign.....	67	22	13	9	8	7	4	2	2	2	2	2
	Nat. unstat'd.....												
Bristol,	Total.....	142	33	34	19	13	10	9	8	4	3	2	1
	Native.....	109	27	29	13	10	9	5	5	4	3	2	1
	Foreign.....	35	5	5	6	3	1	4	3	1	1	1	1
	Nat. unstat'd.....												
Butler,	Total.....	518	168	123	83	62	35	21	16	6	3	7	3
	Native.....	388	132	94	59	41	24	13	11	3	3	4	2
	Foreign.....	130	36	29	23	11	11	8	5	3	3	3	3
	Nat. unstat'd.....												
Carbondale,	Total.....	530	108	74	44	31	19	17	7	6	4	2	4
	Native.....	304	89	67	33	22	14	12	5	6	3	1	4
	Foreign.....	56	16	6	5	7	5	5	2	1	1	1	1
	Nat. unstat'd.....	20	3	1	1	2							
Carlisle,	Total.....	134	36	28	19	20	12	4	5	3	2	1	1
	Native.....	129	36	26	19	20	10	4	4	3	2	1	1
	Foreign.....	5		2		2		2		1			
	Nat. unstat'd.....												
Carnegie,	Total.....	297	77	51	53	40	15	16	13	4	4	3	2
	Native.....	133	39	22	28	15	12	10	9	2	3	1	1
	Foreign.....	159	38	29	25	25	3	5	11	2	1	2	1
	Nat. unstat'd.....												
Chambersburg,	Total.....	233	68	48	41	24	18	15	6	3	2	3	1
	Native.....	233	68	44	41	24	18	15	6	3	2	3	1
	Foreign.....	4		4				1					
	Nat. unstat'd.....												
Charleroi,	Total.....	206	43	48	33	25	14	9	13	8	4		
	Native.....	107	26	22	21	14	6	5	7	3			
	Foreign.....	96	16	24	12	11	8	4	6	5	4		
	Nat. unstat'd.....	3	1	2									
Chester,	Total.....	670	199	140	113	54	43	32	23	17	15	7	5
	Native.....	569	170	110	81	38	28	21	13	10	8	4	4
	Foreign.....	149	27	25	32	16	14	8	3	6	7	3	1
	Nat. unstat'd.....	172	50	46	24	18	10	13	5	3	2	1	1
Clearfield,	Total.....	150	45	35	20	18	6	11	7	3	2	1	1
	Native.....	150	45	35	20	18	6	11	7	3	2	1	1
	Foreign.....	20	5	4	3		2	1					
	Nat. unstat'd.....												
Coatesville,	Total.....	299	99	69	41	32	18	12	10	6	4	4	1
	Native.....	252	81	60	36	25	13	11	9	6	4	3	1
	Foreign.....	47	18	9	5	7	5	1	1	1	1		
	Nat. unstat'd.....												
Columbia,	Total.....	366	91	83	62	41	29	17	15	5	7	6	1
	Native.....	344	86	78	59	39	26	17	15	5	5	2	1
	Foreign.....	34	5	4	1	1	3						
	Nat. unstat'd.....	3											
Connellsville,	Total.....	257	76	61	29	19	16	12	11	3	4	2	2
	Native.....	207	71	45	24	11	15	11	9	8	3	3	3
	Foreign.....	52	4	15	5	8	4	5	3	3	1	2	2
	Nat. unstat'd.....	4	1	1		1							

Forest City,	Total,	233	53	65	52	31	35	22	9	8	12	2	1
	Native,	58	15	19	7	2	6	3	1	2	3	2	1
	Foreign,	235	28	46	45	29	29	19	8	6	9	2	1
	Nat. unstat'd,												
Franklin,	Total,	206	74	44	30	18	16	9	3	4	3	2	2
	Native,	180	64	38	26	14	14	8	3	4	3	2	2
	Foreign,	23	9	6	4	2	2	1					
	Nat. unstat'd,	2	1	1									
Freehold,	Total,	157	41	23	19	7	15	14	8	3	4	3	1
	Native,	102	30	13	12	7	12	9	2	4	2	1	1
	Foreign,	48	11	8	6	3	3	5	6	4	2	1	1
	Nat. unstat'd,	6							1				
Greensburg,	Total,	292	92	62	44	16	18	22	11	7	6	2	5
	Native,	230	74	49	32	13	10	17	7	6	4	1	2
	Foreign,	70	18	13	10	3	8	5	4	1	2	1	3
	Nat. unstat'd,	2											
Greenville,	Total,	127	38	35	22	9	8	2	7	2	1	1	1
	Native,	115	34	33	20	9	6	2	6	2	1	1	1
	Foreign,	12	4	2	2		2		1				
	Nat. unstat'd,												
Hanover,	Total,	116	33	41	24	14	15	9	6	4	2	1	3
	Native,	170	51	40	24	13	14	9	6	4	2	1	3
	Foreign,												
	Nat. unstat'd,	6	1	1									
Harrisburg,	Total,	1,182	404	255	184	98	75	57	44	20	8	9	4
	Native,	1,086	371	242	168	94	76	50	40	14	7	8	4
	Foreign,	87	31	12	16	4	5	6	4	6	1	1	
	Nat. unstat'd,	9	2	1				1					
Hazleton,	Total,	285	56	42	54	27	27	20	15	18	8	4	4
	Native,	175	34	25	34	19	16	15	11	9	2	1	3
	Foreign,	110	22	17	20	8	11	5	4	9	6	3	1
	Nat. unstat'd,												
Homestead,	Total,	638	174	135	111	78	53	40	29	11	10	6	3
	Native,	228	64	51	34	21	16	11	15	3	2	2	1
	Foreign,	410	110	84	77	56	37	29	14	8	8	4	2
	Nat. unstat'd,	2											
Huntingdon,	Total,	125	37	34	21	13	11	3	1		3	1	
	Native,	123	35	31	21	12	11	3	1		2	1	
	Foreign,	2	1										
	Nat. unstat'd,												
Indiana,	Total,	106	36	26	17	3	8	6	2	4		2	
	Native,	95	33	23	16	3	8	5	2	3		1	
	Foreign,	5	1	2	1							1	
	Nat. unstat'd,	5	2	1									
Jeannette,	Total,	185	60	38	26	25	8	11	5	6	4	2	1
	Native,	142	41	33	16	16	5	9	5	4	2	1	
	Foreign,	43	9	5	10	9	3	2					
	Nat. unstat'd,												
Johnsonburg,	Total,	157	47	36	25	12	10	5	8	4	5	2	2
	Native,	137	28	20	18	6	4	1	3	1	2	2	2
	Foreign,	71	18	16	6	6	6	4	5	3	2		
	Nat. unstat'd,	3	1	1	1	1							

Susquehanna,	Total,	297	.....	25	79	65	59	34	23	2	7
Native,	Native,	290	.....	26	78	60	55	31	22	2	6
Foreign,	Foreign,	15	.....	2	1	5	4	3	1	.....	.....
Nat. unstatd,	Nat. unstatd,	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	689	3	58	201	155	112	96	44	6	14
Native,	Native,	578	3	51	187	134	81	75	27	5	13
Foreign,	Foreign,	109	.....	7	14	19	30	21	17	1	.....
Nat. unstatd,	Nat. unstatd,	4	.....	.....	.....	2	46	1	21	2	3
Total,	Total,	285	.....	30	86	96	53	42	21	2	2
Native,	Native,	282	.....	29	85	95	50	41	20	.....	.....
Foreign,	Foreign,	3	.....	1	1	1	.....	.....	.....	.....	.....
Nat. unstatd,	Nat. unstatd,	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	411	.....	39	113	103	73	54	30	3	6
Native,	Native,	385	.....	38	105	99	69	50	17	3	4
Foreign,	Foreign,	23	.....	1	8	4	4	4	8	.....	.....
Nat. unstatd,	Nat. unstatd,	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	424	.....	26	118	92	82	70	28	4	4
Native,	Native,	319	.....	25	96	73	60	41	12	2	1
Foreign,	Foreign,	112	.....	1	22	19	22	29	16	2	1
Nat. unstatd,	Nat. unstatd,	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	1,224	.....	112	353	324	230	147	49	1	2
Native,	Native,	882	.....	80	283	255	146	100	32	1	8
Foreign,	Foreign,	338	.....	30	170	117	71	36	17	.....	.....
Nat. unstatd,	Nat. unstatd,	7	.....	3	86	2	79	46	30	1	4
Total,	Total,	366	.....	25	79	80	66	40	23	1	4
Native,	Native,	323	.....	25	79	80	66	40	23	1	4
Foreign,	Foreign,	43	.....	7	7	13	13	8	2	.....	.....
Nat. unstatd,	Nat. unstatd,	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	3,064	3	253	844	799	563	374	139	14	75
Native,	Native,	1,620	2	153	455	381	306	227	72	6	19
Foreign,	Foreign,	1,404	.....	98	384	414	256	146	66	8	37
Nat. unstatd,	Nat. unstatd,	35	.....	2	5	4	2	1	1	.....	.....
Total,	Total,	508	1	16	69	60	34	20	8	.....	.....
Native,	Native,	298	.....	16	69	59	34	20	8	.....	.....
Foreign,	Foreign,	210	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nat. unstatd,	Nat. unstatd,	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	1,544	.....	164	395	369	269	230	89	13	19
Native,	Native,	1,386	.....	163	393	368	263	229	89	13	18
Foreign,	Foreign,	7	.....	1	2	1	3	1	.....	.....	.....
Nat. unstatd,	Nat. unstatd,	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	Total,	53,581	30	4,832	14,441	13,714	9,896	7,102	2,914	332	761
Native,	Native,	42,691	26	4,238	11,633	10,245	7,880	5,880	2,218	268	476
Foreign,	Foreign,	10,669	3	673	2,765	2,584	1,989	1,486	686	61	138
Nat. unstatd,	Nat. unstatd,	311	1	21	43	45	40	26	10	3	126

Total rural exclusive of all incorpo-
rated municipalities.

TABLE 3.

Births by nativity of mothers and number of child of mothers for the entire State, for incorporated municipalities having more than 5,000 population, for certain groups of municipalities having less than 5,000 population and for the rural sections of each county.

	Total.	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.
Entire State,	167,265	44,094	33,696	24,768	17,260	12,522	9,451	6,749	4,755	3,370	2,349	1,371
Native,	117,223	33,227	24,333	17,370	11,694	8,384	6,127	4,899	3,000	2,173	1,506	828
Foreign,	48,996	10,591	8,992	7,275	5,468	4,087	3,173	2,306	1,726	1,181	830	534
Nat. unstat'd.,	1,046	266	171	123	108	51	51	44	29	18	13	9
Total,	2,203	644	434	299	214	143	111	73	56	30	23	18
Native,	1,266	403	243	160	102	71	46	32	27	15	10	6
Foreign,	979	232	190	139	111	71	65	39	29	15	13	12
Nat. unstat'd.,	18	9	1	1	1	1	1	2	1	1	1	1
Total,	1,077	251	150	94	67	35	35	37	28	18	7	4
Native,	877	211	137	103	74	46	37	26	22	15	6	4
Foreign,	267	79	64	43	23	21	8	11	6	3	1	1
Nat. unstat'd.,	3	1	1	1	1	1	1	1	1	1	1	1
Total,	1,289	382	290	202	110	82	53	37	23	23	15	6
Native,	1,058	347	249	170	94	68	43	33	18	18	9	6
Foreign,	209	47	45	32	16	21	15	4	7	7	6	1
Nat. unstat'd.,	3	2	1	1	1	1	1	1	1	1	1	1
Total,	165	34	35	10	24	10	9	9	8	7	2	4
Native,	108	23	21	13	16	7	5	6	6	5	2	3
Foreign,	57	11	14	3	8	3	4	3	2	2	1	1
Nat. unstat'd.,	187	62	40	20	20	10	9	7	6	5	2	2
Total,	168	58	39	19	17	9	4	5	6	4	2	2
Native,	19	4	1	1	3	1	5	2	1	1	1	1
Nat. unstat'd.,	367	64	67	32	33	26	16	3	2	7	3	4
Native,	173	43	55	21	18	13	10	1	1	5	1	3
Foreign,	89	20	12	10	15	6	2	2	2	2	1	1
Nat. unstat'd.,	5	1	1	1	1	1	1	1	1	1	1	1
Total,	246	83	42	34	32	11	15	13	6	2	4	4
Native,	223	78	40	33	26	10	12	11	6	1	1	1
Foreign,	22	5	2	3	4	1	3	2	1	1	1	1
Nat. unstat'd.,	144	53	25	21	14	5	7	5	3	2	1	1
Total,	143	57	25	21	14	5	7	5	3	2	1	1
Native,	2	1	1	1	1	1	1	1	1	1	1	1
Nat. unstat'd.,	828	213	213	135	81	60	45	32	18	18	9	1
Total,	185	61	47	25	17	12	7	7	1	3	4	1
Native,	643	152	166	110	64	48	38	25	17	15	5	1
Foreign,	185	61	47	25	17	12	7	7	1	3	4	1
Nat. unstat'd.,	185	61	47	25	17	12	7	7	1	3	4	1

Bradford,	Total.	302	115	67	41	28	21	10	7	1	4	2	2
	Native.	235	93	54	32	20	14	6	5	1	2	2	2
	Foreign.	67	22	13	9	8	7	4	2				
	Nat. unstat'd.												
Bristol,	Total.	142	33	34	19	13	10	8	5	4	3	2	1
	Native.	109	27	29	13	10	9	6	5	4	3	2	1
	Foreign.	32	5	6	6	3	1	4	3				
	Nat. unstat'd.												
Butler,	Total.	318	133	123	83	52	35	21	16	6	3	7	4
	Native.	308	132	124	81	51	34	24	13	11	3	3	3
	Foreign.	130	36	29	23	11	11	8	5	3			
	Nat. unstat'd.												
Carbondale,	Total.	590	108	74	44	31	19	17	7	6	4	2	4
	Native.	304	89	67	38	22	14	12	5	6	3	1	4
	Foreign.	56	16	6	6	7	5	5	2		1	1	1
	Nat. unstat'd.												
Carlisle,	Total.	20	3	1	1	2							
	Native.	134	36	28	19	20	12	4	5	3	2	1	1
	Foreign.	129	36	26	19	20	10	4	4	3	2	1	1
	Nat. unstat'd.	5		2		2							
Carnegie,	Total.	297	77	51	53	40	15	15	13	4	4	3	2
	Native.	135	39	22	23	15	10	2	9	1	3	2	2
	Foreign.	139	38	29	25	25	3	5	11	2	3	1	1
	Nat. unstat'd.												
Chambersburg,	Total.	239	68	48	41	24	18	16	6	3	2	3	2
	Native.	233	68	44	41	24	18	15	6	3	2	3	2
	Foreign.	4											
	Nat. unstat'd.												
Charleroi,	Total.	206	43	48	33	23	14	9	13	8	4	4	
	Native.	107	26	22	21	14	6	5	7	3			
	Foreign.	96	16	24	12	11	8	4	6	5	4	2	
	Nat. unstat'd.												
Chester,	Total.	670	199	140	113	54	43	32	23	17	15	7	5
	Native.	669	190	140	110	53	42	31	19	16	14	4	4
	Foreign.	15	9	2	3	1	1	1	3	6	7	3	1
	Nat. unstat'd.												
Clearfield,	Total.	172	50	40	24	18	10	13	8	3	2	1	1
	Native.	159	45	35	20	18	6	11	7	3	2	1	1
	Foreign.	20	5	4	3		4	2	1				
	Nat. unstat'd.												
Coatesville,	Total.	299	99	69	41	32	18	12	10	6	4	4	1
	Native.	252	81	60	36	25	13	11	9	6	4	3	1
	Foreign.	47	18	9	5	7	5	1	1				
	Nat. unstat'd.												
Columbia,	Total.	366	91	83	52	41	29	17	15	5	7	6	1
	Native.	344	86	78	53	39	26	17	15	5	5	6	1
	Foreign.	3	5				3						
	Nat. unstat'd.												
Connellsville,	Total.	257	76	61	29	20	19	16	12	11	3	4	2
	Native.	201	71	45	24	11	15	11	9	8	3	3	1
	Foreign.	52	4	15	5	8	4	5	3	3			
	Nat. unstat'd.	4	1	1		1							

Forest City,	293	53	63	52	31	23	22	9	8	12	2	1
Native,	18	15	19	7	2	6	3	1	2	3		
Foreign,	235	28	46	45	29	19	19	8	6	9	2	1
Nat. unstatd,												
Total,	295	74	44	20	18	16	9	3	4	3	2	
Native,	180	38	16	14	8	3	3	3	4	3	2	
Foreign,	23	9	5	4	2	2	1					
Nat. unstatd,	2	1	1									
Total,	187	41	23	19	12	15	14	8	8	6	3	1
Native,	102	30	15	12	7	12	9	5	4	4	2	
Foreign,	49	11	8	6	3	3	5	2	4	2	1	1
Nat. unstatd,	6			1	2			1				
Total,	282	63	44	16	18	18	22	11	7	6	2	3
Native,	220	74	49	32	13	10	17	7	6	4	1	3
Foreign,	79	18	13	10	3	8	5	4	1	2	1	
Nat. unstatd,												
Total,	127	38	35	22	9	8	2	7	2	1	1	1
Native,	115	34	33	20	9	2		6	2	1	1	1
Foreign,	12	4	2			2		1				
Nat. unstatd,												
Total,	175	53	41	24	14	15	9	6	4	3	1	3
Native,	170	51	40	24	13	14	9	6	4	2	1	3
Foreign,	5	2	1		1	1						
Nat. unstatd,												
Total,	1,182	404	265	184	93	75	57	44	20	8	9	4
Native,	1,086	371	242	168	94	76	50	40	14	7	8	4
Foreign,	87	31	12	16	4	5	6	4	6	1	1	
Nat. unstatd,	9	2	1									
Total,	285	56	42	64	27	27	20	15	18	8	4	4
Native,	175	34	25	34	19	16	15	11	9	2	1	3
Foreign,	110	22	17	20	8	11	5	4	9	6	3	1
Nat. unstatd,												
Total,	558	174	135	111	78	52	40	29	11	10	6	3
Native,	228	64	51	34	21	17	11	7	3	2	2	3
Foreign,	420	110	84	77	56	37	23	14	8	8	4	2
Nat. unstatd,	2				1							
Total,	125	37	34	21	13	11	3	1		2	1	
Native,	123	35	31	21	12	11	3	1		2	1	
Foreign,	2	1			1							
Nat. unstatd,												
Total,	105	36	26	17	3	8	6	2	4		2	
Native,	95	33	23	16	3	8	5	2	3		1	
Foreign,	5	1	2	1								
Nat. unstatd,	5	2	1				1		1		1	
Total,	185	50	38	26	25	8	11	5	6	4	2	1
Native,	142	41	32	16	16	5	9	5	4	4	2	1
Foreign,	43	9	5	10	9	3	2		2			
Nat. unstatd,												
Total,	157	47	36	25	12	10	5	8	4	5	2	2
Native,	83	28	20	18	5	4	1	3	1	3	2	2
Foreign,	71	18	16	6	6	6	4	5	3	2		
Nat. unstatd,	3	1		1								

Mahanoy City,	401	102	71	43	28	48	20	34	15	10	9	7	5
Total,	232	60	49	28	13	18	7	17	8	7	2	4	1
Native,	161	40	21	13	20	7	7	1	1	3	7	2	4
Foreign,	8	2	2	15	6	1	1	1	1	1	1	1	1
Nat. unstat'd,	212	70	70	28	17	4	4	7	5	3	2	1	1
Meadville,	178	60	61	23	13	3	3	6	3	3	1	1	1
Total,	25	4	7	5	1	1	1	2	2	1	1	1	1
Native,	11	6	2	15	12	8	8	10	3	1	3	1	1
Foreign,	134	36	38	15	11	11	5	7	2	1	3	1	1
Nat. unstat'd,	108	32	37	8	11	8	7	7	2	1	3	1	1
Middletown,	23	4	7	7	1	1	1	1	1	1	1	1	1
Total,	227	58	52	33	20	30	20	17	20	7	6	6	3
Native,	134	27	30	23	18	11	9	8	6	4	3	1	1
Foreign,	93	11	13	10	12	9	9	8	14	3	3	5	3
Nat. unstat'd,	164	50	40	23	17	11	11	7	5	2	2	4	2
Milton,	162	50	38	23	17	11	11	7	5	2	2	4	2
Total,	2	2	2	2	2	2	2	2	2	2	2	2	2
Native,	193	46	36	23	20	26	26	15	8	6	1	1	2
Foreign,	89	23	18	10	5	13	7	3	1	3	1	1	2
Nat. unstat'd,	104	13	18	18	13	13	13	8	8	3	1	1	2
Minersville,	192	73	37	27	20	14	14	3	3	4	2	4	1
Total,	136	60	26	17	15	7	7	3	2	3	2	2	2
Native,	56	13	12	9	5	7	7	2	1	1	1	1	1
Foreign,	45	104	96	51	39	40	40	29	27	18	8	11	1
Nat. unstat'd,	281	66	64	28	21	15	15	15	15	10	8	4	1
Mt. Carmel,	188	38	31	23	18	19	14	14	12	8	5	7	1
Total,	5	1	1	1	1	1	1	1	1	1	1	1	1
Native,	180	41	34	30	22	16	16	3	13	2	3	3	1
Foreign,	113	31	25	17	15	10	10	4	4	2	3	2	1
Nat. unstat'd,	67	10	9	13	7	6	6	3	9	1	1	1	1
Mt. Pleasant,	585	118	120	83	69	42	36	32	26	21	10	7	7
Total,	173	46	53	26	16	9	5	5	5	5	1	1	1
Native,	412	72	67	57	53	33	33	31	27	21	20	10	6
Foreign,	207	59	47	36	17	13	11	7	7	2	1	1	1
Nat. unstat'd,	183	54	41	31	16	10	10	6	6	2	1	1	1
New Brighton,	23	4	6	6	1	3	1	1	1	1	1	1	1
Total,	1	1	1	1	1	1	1	1	1	1	1	1	1
Native,	776	200	193	129	89	54	54	37	15	10	13	8	3
Foreign,	586	201	157	84	56	26	26	12	6	4	6	5	3
Nat. unstat'd,	186	49	35	33	20	18	17	7	2	5	9	3	1
New Castle,	425	125	92	64	28	21	24	12	10	3	3	3	4
Total,	364	116	89	52	29	23	15	10	9	3	3	3	2
Native,	56	19	4	12	9	8	9	9	1	1	1	1	1
Foreign,	5	5	5	5	5	5	5	5	5	5	5	5	5
Nat. unstat'd,	1	1	1	1	1	1	1	1	1	1	1	1	1

Punxsutawney,	Total,	183	43	44	27	26	12	8	4	6	3	7
	Native,	150	38	39	18	23	12	7	3	3	1	4
	Foreign,	31	5	4	9	3						
	Nat. unstat'd,	2		1								
Reading,	Total,	2,187	640	491	310	219	129	121	75	51	48	31
	Native,	1,776	549	413	255	171	100	91	56	41	40	23
	Foreign,	411	91	78	55	48	29	30	19	10	8	7
	Nat. unstat'd,											
Rochester,	Total,	158	58	36	25	12	6	6	5	4	3	
	Native,	129	47	29	23	10	4	4	5	4	2	
	Foreign,	24	8	7	2	2	2				1	
	Nat. unstat'd,	3										
St. Clair,	Total,	164	49	29	23	23	9	7	14	2	3	1
	Native,	113	31	20	19	13	4	5	11	2	3	
	Foreign,	51	18	9	4	5	5	2	3			
	Nat. unstat'd,											
St. Marys,	Total,	201	43	33	33	28	26	11	6	9	3	4
	Native,	175	39	24	23	23	21	8	5	9	3	1
	Foreign,	26	4	4	4	3	1	3	1			
	Nat. unstat'd,											
Sayre,	Total,	165	64	42	17	15	10	4	7	1	1	1
	Native,	152	58	40	17	13	9	3	7	1	1	1
	Foreign,	12	5	2		2	1	1				
	Nat. unstat'd,	1										
Scottdale,	Total,	165	38	27	28	21	16	14	8	5	1	3
	Native,	147	36	25	23	19	14	12	7	5		2
	Foreign,	16	2	2	4	2	2	2	1		1	
	Nat. unstat'd,	2										
Scranton,	Total,	2,388	692	449	329	312	167	139	118	91	58	30
	Native,	1,435	442	315	193	127	80	70	54	36	22	10
	Foreign,	901	139	131	136	83	87	69	61	54	36	20
	Nat. unstat'd,											
Shamokin,	Total,	532	120	126	86	54	56	31	16	24	13	4
	Native,	461	109	106	76	45	40	22	10	19	12	11
	Foreign,	89	11	21	9	6	15	9	6	5	1	2
	Nat. unstat'd,	2										
Sharon,	Total,	376	114	96	57	38	22	11	18	3	4	5
	Native,	273	91	72	41	24	17	8	9	1	3	2
	Foreign,	102	22	23	16	14	5	3	9	2	1	3
	Nat. unstat'd,	1										
Sharpsburg,	Total,	120	25	27	16	24	5	5	4	4	4	1
	Native,	66	13	20	9	12	3	3	1	1	1	
	Foreign,	54	12	7	7	12	2	5	1	3	3	1
	Nat. unstat'd,											
Shenandoah,	Total,	375	113	62	47	43	22	24	19	15	10	9
	Native,	298	62	40	29	26	14	8	12	5	5	2
	Foreign,	166	50	22	18	17	8	16	7	10	5	7
	Nat. unstat'd,											
South Bethlehem,	Total,	695	163	135	86	68	48	30	17	28	11	3
	Native,	292	156	126	78	56	31	29	9	26	4	2
	Foreign,	373	118	77	56	42	30	8	7	18	6	2
	Nat. unstat'd,	2							1			

West Pittston,	Total,	119	28	26	18	13	10	7	5	1	2	2
	Native,	83	27	20	12	10	8	2	2	1	2	2
	Foreign,	36	0	6	6	3	2	6	3	1		
	Nat. unstat'd,											
Wilkes-Barre,	Total,	1,401	382	273	218	137	115	92	57	49	37	16
	Native,	83	257	183	132	86	72	56	37	22	21	8
	Foreign,	56	105	87	85	51	43	34	20	27	16	9
	Nat. unstat'd,	2	1	1	1	1	1	1	1	1	1	1
Wilkesburg,	Total,	368	143	75	52	35	19	14	5	4	2	1
	Native,	308	136	66	38	23	13	12	2	2	1	1
	Foreign,	57	13	9	13	8	5	2	3	4	1	1
	Nat. unstat'd,											
Williamsport,	Total,	527	193	146	81	62	32	19	14	15	4	3
	Native,	296	133	131	77	54	27	16	11	12	3	2
	Foreign,	50	10	10	7	7	5	3	3	3	1	1
	Nat. unstat'd,	1										
Wilmerding,	Total,	191	49	57	23	19	12	10	8	5	1	2
	Native,	103	24	14	8	9	3	4	3	1	1	3
	Foreign,	89	16	33	9	11	3	7	4	2	1	1
	Nat. unstat'd,											
York,	Total,	1,055	395	225	161	105	62	44	36	31	21	19
	Native,	1,010	317	216	158	92	57	43	35	29	21	19
	Foreign,	45	78	9	3	13	5	1	1	2	1	1
	Nat. unstat'd,											
All boroughs between 2,500 and 5,000 population.												
All boroughs less than 2,500 population.	Total,	7,938	2,124	1,683	1,216	823	556	445	281	185	141	106
	Native,	5,927	1,752	1,322	968	633	410	315	201	128	95	61
	Foreign,	1,833	382	346	294	228	146	131	79	57	46	29
	Nat. unstat'd,	43	10	15	7	4				1		1
Counties (Rural).	Total,	20,125	5,501	4,246	3,146	2,238	1,536	1,114	768	533	399	240
	Native,	15,113	4,249	3,598	2,598	1,707	1,107	899	548	371	271	162
	Foreign,	4,831	1,065	988	736	557	425	299	217	156	126	77
	Nat. unstat'd,	101	27	20	12	11	4	6	3	6	2	1
Adams,	Total,	573	121	121	85	53	44	37	32	25	17	16
	Native,	120	120	84	53	41	37	32	25	17	16	16
	Foreign,	1	1	1	1	1	1	1	1	1	1	1
	Nat. unstat'd,											
Allegheny,	Total,	3,132	709	628	465	379	283	210	135	90	70	50
	Native,	1,865	469	411	265	216	147	132	75	52	36	21
	Foreign,	1,267	237	216	187	132	114	76	79	37	40	29
	Nat. unstat'd,	1	1	1	2	2	2	1	1	1	1	1
Armstrong,	Total,	451	183	188	151	96	80	62	40	25	20	12
	Native,	798	179	165	139	79	73	52	34	21	18	11
	Foreign,	99	16	22	12	17	7	8	6	4	2	1
	Nat. unstat'd,	4										
Beaver,	Total,	498	107	68	67	51	27	17	20	12	10	5
	Native,	325	85	67	56	46	24	1	14	10	7	3
	Foreign,	4	20	1	11	10	1	1	5	2	3	2
	Nat. unstat'd,	6	9	1								
Bedford,	Total,	732	157	131	107	75	63	56	47	26	15	29
	Native,	658	148	130	101	72	60	54	45	24	13	17
	Foreign,	31	6	1	4	4	3	2	1	2	2	2
	Nat. unstat'd,	10	3	2	2	1	1	1	1	1	1	1

Clearfield,	1,611	298	284	256	173	140	124	100	62	26	21
Native,	1,099	221	191	157	108	81	68	45	35	34	17
Foreign,	598	77	93	98	64	59	60	56	27	26	9
Nat. unstatd.,	4			1	1						
Total,	268	82	60	42	24	22	13	6	1	4	3
Native,	235	73	63	37	20	18	13	6	1	4	1
Foreign,	32	9	6	5	4	4	2				
Nat. unstatd.,	1										
Total,	515	134	98	75	60	47	29	21	14	8	10
Native,	453	125	88	70	56	43	27	19	14	5	8
Foreign,	38	9	10	5	1	3	2	2		3	1
Nat. unstatd.,	2										
Total,	478	154	121	85	58	53	42	21	18	8	6
Native,	462	150	116	83	54	50	37	19	18	8	6
Foreign,	14	2	3	1	2	2	4	1			
Nat. unstatd.,	12	2	3	1	2	1	1				
Total,	557	151	100	94	57	51	34	24	17	12	5
Native,	544	148	98	92	57	49	34	22	16	12	5
Foreign,	6	1	2			1		2			
Nat. unstatd.,	7	2		1							
Total,	837	203	150	121	79	74	49	45	35	29	20
Native,	727	186	124	102	64	68	42	39	31	27	17
Foreign,	106	17	26	19	15	5	5	5	4	2	3
Nat. unstatd.,	4										
Total,	539	125	110	68	61	48	32	23	25	17	7
Native,	411	107	89	47	42	34	20	15	16	13	7
Foreign,	126	17	21	21	16	14	12	5	9	4	1
Nat. unstatd.,	2										
Total,	525	121	86	78	56	47	40	27	26	12	15
Native,	395	79	40	39	40	25	24	20	16	7	4
Foreign,	231	42	46	39	26	22	16	7	10	5	11
Nat. unstatd.,											
Total,	493	126	111	81	61	32	25	24	9	7	6
Native,	444	118	103	71	54	27	23	19	8	6	3
Foreign,	39	6	8	4	4	4	2	5	1	1	1
Nat. unstatd.,	10	2	2	2	2	1					
Total,	2,190	499	388	329	267	170	142	121	78	64	31
Native,	1,422	331	249	210	160	114	92	79	58	40	20
Foreign,	758	165	137	117	106	56	50	42	20	23	11
Nat. unstatd.,	10	3	2	2	1						
Total,	205	50	34	25	26	21	15	10	4	3	2
Native,	197	50	33	24	22	21	15	17	4	3	2
Foreign,	6		1	1	4						
Nat. unstatd.,	2							2			
Total,	882	195	127	132	91	112	61	46	35	30	19
Native,	873	194	126	130	88	112	60	46	35	30	18
Foreign,	4		1	2	2						
Nat. unstatd.,	4						1				1
Total,	238	53	37	43	30	26	13	7	6	11	4
Native,	232	52	36	41	30	26	13	7	4	11	4
Foreign,	2	1	1								
Nat. unstatd.,	4			2					2		

TABLE 3.—Births by Nativity of Mothers and Number of Child—Continued.

	Total.	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	11th.
Greene,												
Total.....	375	98	84	46	33	36	19	18	11	8	4	4
Native.....	367	95	82	45	37	36	19	18	11	8	4	4
Foreign.....	6	3	2	1	1							
Nat. unstate-1.....	2											
Huntingdon,												
Total.....	463	107	73	67	68	43	29	24	15	9	10	5
Native.....	438	100	67	64	65	39	29	21	13	9	9	5
Foreign.....	4	6	6	2	1	4		2	1		1	
Nat. unstate-1.....	6											
Indiana,												
Total.....	1,050	224	295	162	124	87	73	45	32	21	28	10
Native.....	1,040	174	139	114	88	61	58	38	22	14	21	8
Foreign.....	283	68	63	47	32	25	16	8	9	11	5	1
Nat. unstate-1.....	2		3	1								
Jefferson,												
Total.....	279	245	217	190	156	116	95	75	62	21	24	17
Native.....	228	167	131	112	87	63	50	38	33	14	14	5
Foreign.....	525	78	85	76	68	54	44	36	24	13	10	12
Nat. unstate-1.....	6		1	2	1			1				
Junkata,												
Total.....	311	71	62	45	33	20	25	17	12	6	6	4
Native.....	306	71	62	44	32	19	25	17	12	6	6	2
Foreign.....	3			1	1							1
Nat. unstate-1.....	2											
Lackawanna,												
Total.....	293	79	56	41	21	16	21	13	9	5	7	1
Native.....	217	59	49	38	19	11	16	8	5	3	5	
Foreign.....	63	18	7	3	2	5	5	7	4	2	2	1
Nat. unstate-1.....	2											
Lancaster,												
Total.....	2,015	393	384	326	294	167	124	112	65	60	37	21
Native.....	2,013	487	376	323	292	163	121	110	65	59	35	21
Foreign.....	29	5	8	3	2	5	2	2			1	
Nat. unstate-1.....	3		1									
Lawrence,												
Total.....	490	103	103	73	62	40	31	38	11	14	6	1
Native.....	389	85	89	55	46	33	26	30	8	9	3	1
Foreign.....	100	17	14	18	16	7	8	8	3	5	3	
Nat. unstate-1.....	1											
Lebanon,												
Total.....	821	229	167	117	85	63	44	32	23	23	16	5
Native.....	777	216	155	108	81	61	43	32	21	23	15	5
Foreign.....	43	13	12	9	4	2	1		1		1	
Nat. unstate-1.....	1											
Lehigh,												
Total.....	1,997	273	207	169	130	79	54	57	36	36	21	12
Native.....	839	216	162	140	105	61	45	47	32	23	19	11
Foreign.....	255	67	24	29	25	18	9	10	4	2	2	
Nat. unstate-1.....	3											
Luzerne,												
Total.....	2,108	445	379	308	290	171	161	111	93	63	44	20
Native.....	2,098	331	281	239	194	84	63	39	27	21	18	10
Foreign.....	1,084	163	177	170	145	87	98	71	52	36	26	27
Nat. unstate-1.....	4				1							

Lycmings,	663	145	140	103	72	53	40	27	29	16	13	6
Total.....	585	122	123	99	67	47	20	23	27	15	11	4
Native.....	57	9	15	2	1	1	4	1	2	1	2	2
Foreign.....	16	4	2	66	51	38	33	21	4	6	5	2
Nat. unstated.....	421	105	82	60	29	27	23	10	2	0	2	2
McKean,	300	87	60	60	23	10	2	2	2	0	2	1
Total.....	116	17	20	15	23	12	9	11	2	1	2	1
Native.....	6	1	2	95	75	45	41	24	14	13	7	6
Foreign.....	561	144	104	96	68	38	33	20	13	13	7	4
Nat. unstated.....	517	130	96	85	5	9	8	4	1	1	2	2
Native.....	56	11	5	10	5	1	1	1	1	1	1	1
Foreign.....	465	110	92	89	57	44	22	20	19	8	19	7
Nat. unstated.....	454	105	82	69	65	44	23	19	17	7	19	7
Native.....	9	4	1	1	1	1	1	1	2	1	1	1
Foreign.....	252	64	44	44	28	20	14	15	14	8	7	1
Nat. unstated.....	250	62	44	44	23	20	13	13	13	8	7	1
Native.....	9	2	1	1	1	1	1	1	1	1	1	1
Foreign.....	1,490	388	304	227	153	128	82	72	42	36	15	6
Nat. unstated.....	1,187	319	238	184	113	104	66	58	36	36	18	6
Native.....	1,296	70	64	40	38	22	15	14	9	8	8	6
Foreign.....	7	2	3	1	1	1	1	1	1	1	1	1
Nat. unstated.....	115	23	28	15	17	10	7	4	6	4	4	2
Native.....	113	22	28	15	16	10	6	4	6	4	4	2
Foreign.....	2	1	1	1	1	1	1	1	1	1	1	1
Nat. unstated.....	913	233	167	113	102	81	60	54	37	14	14	12
Native.....	746	201	185	98	82	63	49	40	33	10	13	10
Foreign.....	161	32	32	18	19	18	11	14	3	4	1	2
Nat. unstated.....	864	201	170	143	93	91	70	40	45	26	18	15
Native.....	864	172	141	135	85	79	56	32	32	18	14	11
Foreign.....	143	28	24	15	12	11	14	8	13	8	3	4
Nat. unstated.....	377	87	77	49	34	32	34	17	15	11	7	2
Native.....	375	87	76	49	34	31	34	17	15	11	7	2
Foreign.....	1	1	1	1	1	1	1	1	1	1	1	1
Nat. unstated.....	1	1	1	1	1	1	1	1	1	1	1	1
Native.....	1	1	1	1	1	1	1	1	1	1	1	1
Foreign.....	1	1	1	1	1	1	1	1	1	1	1	1
Nat. unstated.....	125	28	23	18	13	11	8	9	1	3	2	3
Native.....	110	23	21	17	12	8	8	8	1	3	1	3
Foreign.....	14	5	2	1	1	2	1	1	1	1	1	1
Nat. unstated.....	385	111	96	49	47	23	18	18	6	4	4	1
Native.....	341	102	86	41	41	26	17	14	6	4	4	1
Foreign.....	44	8	6	5	6	3	1	4	1	1	1	1
Nat. unstated.....	10	2	3	2	1	1	1	1	1	1	1	1

Charlevoix,	Total.....	1	1	1	1	3
	Native.....	1	1	1	1	1
	Foreign.....	1	1	1	1	1
	Nat. unstated.....					
Chester,	Total.....	4	1	1	1	17
	Native.....	3	1	1	1	8
	Foreign.....	1	1	1	1	9
	Nat. unstated.....					
Clearfield,	Total.....					2
	Native.....					2
	Foreign.....					2
	Nat. unstated.....					
Coatesville,	Total.....	2	1	1	1	
	Native.....	2	1	1	1	
	Foreign.....					
	Nat. unstated.....					
Columbia,	Total.....	1	1	1	1	6
	Native.....	1	1	1	1	5
	Foreign.....					1
	Nat. unstated.....					
Connellsville,	Total.....	3				1
	Native.....	3				1
	Foreign.....	1				1
	Nat. unstated.....	2				
Conshohocken,	Total.....	3	3	1	1	1
	Native.....	3	3	1	1	1
	Foreign.....					3
	Nat. unstated.....					4
Corry,	Total.....			1	1	1
	Native.....			1	1	
	Foreign.....					
	Nat. unstated.....					
Danville,	Total.....	1	2			
	Native.....	1	2			
	Foreign.....					
	Nat. unstated.....					
Dickson City,	Total.....	1	2			6
	Native.....	1	2			3
	Foreign.....					3
	Nat. unstated.....					1
DuBois,	Total.....	1	1			
	Native.....	1	1			
	Foreign.....					
	Nat. unstated.....					
Dunmore,	Total.....	2	3	1	1	1
	Native.....	1	2	1	1	
	Foreign.....					
	Nat. unstated.....					
Duquesne,	Total.....	4	1			32
	Native.....	4	1			14
	Foreign.....					18
	Nat. unstated.....					

TABLE 3.—Births by Nativity of Mothers and Number of Child—Continued.

[illegible]

[illegible]

Scranton,	Total.....	22	7	6	2	1	1	1	46
	Native.....	10	4	4	2	1	1	1	43
	Foreign.....	12	3	2	2				3
	Nat. unstat-d.....								22
Shamokin,	Total.....	7	1	2		1			21
	Native.....	6	1	2		1			2
	Foreign.....	1	1	1		1			1
	Nat. unstat-d.....								1
Sharon,	Total.....	1	1		1				4
	Native.....	1	1		1				3
	Foreign.....								1
Sharpburg,	Total.....	1				1			1
	Native.....	1				1			1
	Foreign.....								3
Shenandoah,	Total.....	3	2	1		1			2
	Native.....	2	1	1		1			2
	Foreign.....	1	1						1
	Nat. unstat-d.....								1
South Bethlehem,	Total.....	2	4	3			1		1
	Native.....	1	4	1			1		1
	Foreign.....	1	1						1
	Nat. unstat-d.....								1
Steelton,	Total.....	2	3						1
	Native.....	1	3						1
	Foreign.....	1	1						1
	Nat. unstat-d.....								
Sunbury,	Total.....	1							
	Native.....	1							
	Foreign.....								
Tamaqua,	Total.....	1	1			1			1
	Native.....	1	1			1			1
	Foreign.....								
	Nat. unstat-d.....								
Tarentum,	Total.....	1							2
	Native.....	1							2
	Foreign.....								
	Nat. unstat-d.....								
Titusville,	Total.....	1							1
	Native.....	1							1
	Foreign.....								
	Nat. unstat-d.....								
Tyrone,	Total.....	2	1						
	Native.....	2	1						
	Foreign.....								
	Nat. unstat-d.....								
Uniontown,	Total.....	1							4
	Native.....	1							4
	Foreign.....								
	Nat. unstat-d.....								

All boroughs less than 2,500 population.		31	57	26	13	7	5	1	202
Total.....		60	40	16	9	4	4	1	129
Native.....		31	17	10	4	3	1		114
Foreign.....									9
Nat. unstated.....									
Counties (Rural).									
Adams.....		6	4	2	1				5
Total.....		6	4	2	1				5
Native.....									
Foreign.....									
Nat. unstated.....									
Allegheny.....		23	9	5	2	1	1		63
Total.....		23	9	5	2	1	1		63
Native.....		7	2	3	1				19
Foreign.....		16	7	2	1	2	1		43
Nat. unstated.....									2
Armstrong.....		9	7	2					2
Total.....		9	7	2					11
Native.....		7	5	2					11
Foreign.....		1	2						
Nat. unstated.....									
Beaver.....		3		1					
Total.....		3		1					
Native.....		2							
Foreign.....		1							
Nat. unstated.....									
Bedford.....		4	4	2			1		6
Total.....		4	4	2			1		6
Native.....		4	4	2			1		6
Foreign.....									
Nat. unstated.....									
Berks.....		19	6	5	4	1	1		16
Total.....		19	6	5	4	1	1		16
Native.....		18	6	5	3	1	1		15
Foreign.....									1
Nat. unstated.....									
Blair.....		1	1		1				5
Total.....		8	1	3	1		1		5
Native.....		6		2	1				5
Foreign.....		1	1	1					
Nat. unstated.....									
Bradford.....		1							4
Total.....		2	3		1				4
Native.....		2	3						
Foreign.....									
Nat. unstated.....									
Bucks.....		8	4		1				6
Total.....		8	4		1				6
Native.....		7	4						
Foreign.....		1							
Nat. unstated.....									
Butler.....		5	2						8
Total.....		5	2						8
Native.....		3							3
Foreign.....		2							1
Nat. unstated.....									
Cumbria.....		18	5	5	2				29
Total.....		11	3	3	2				19
Native.....		11	3	3					9
Foreign.....		7	2	2					1
Nat. unstated.....									1
Cameron.....									1
Total.....									
Native.....									
Foreign.....									
Nat. unstated.....									

Northampton,	Total,	6	3	1	1	1	1	15
	Native,	6	3	1	1	1	1	13
	Foreign,	3						3
Northumberland,	Nat. unstated,							
	Total,	8	7	1		2		19
	Native,	8	7	1				18
	Foreign,		2					1
Perry,	Nat. unstated,							
	Total,	4	3	1	1			4
	Native,	4	3	1	1			4
	Foreign,							
Philadelphia,	Nat. unstated,							
	Total,							
	Native,							
	Foreign,							
Pike,	Nat. unstated,							
	Total,	2	1	1	1			1
	Native,	1	1					1
	Foreign,	1						
Potter,	Nat. unstated,							
	Total,	2						6
	Native,	1						4
	Foreign,	1						
Schuykill,	Nat. unstated,	1						2
	Total,	17	9	7	4	1	1	44
	Native,	15	7	7	3	1	1	31
	Foreign,	2	1					10
Snyder,	Nat. unstated,							
	Total,	3	1					3
	Native,	3	2					
	Foreign,							
Somerset,	Nat. unstated,							
	Total,	8	4	1				1
	Native,	8	3					1
	Foreign,	1	1					
Sullivan,	Nat. unstated,							
	Total,	5	2		1			3
	Native,	5	2					3
	Foreign,							
Susquehanna,	Nat. unstated,							
	Total,	3			1			3
	Native,	3			1			3
	Foreign,							
Toga,	Nat. unstated,							
	Total,	5	5	2				12
	Native,	3	2	2				7
	Foreign,	2						5
Union,	Nat. unstated,							
	Total,		2					1
	Native,		2					1
	Foreign,							
	Nat. unstated,							

TABLE 4.

Illegitimate Births by Localities and Nativity of Mothers.

	Total.	Native.	Foreign.	Nativity Unknown.
Entire State,	4,128	3,564	466	98
Allegheny,	63	43	10	10
Allentown,	36	27	9	
Atleona,	39	37	2	
Ashland,	4	3	1	
Beaver Falls,	2	2		
Bethlehem,	3	3		
Bloomsburg,	3	3		
Braddock,	6	4	2	
Bradford,	7	7		
Bristol,	1	1		
Butler,	6	6		
Carlisle,	8	8		
Carnegie,	5	5		
Chambersburg,	16	16		
Charleroi,	2	1	1	
Chester,	24	24		
Clearfield,	6	6		
Coatesville,	11	10	1	
Columbia,	18	18		
Connellsville,	1		1	
Conshohocken,	1	1		
Corry,	2	2		
Danville,	8	8		
DuBois,	5	5		
Dunmore,	16	4	2	10
Duquesne,	4	3	1	
Easton,	11	11		
Erie,	20	16	4	
Etna,	2	2		
Forest City,	5	2	3	
Franklin,	11	11		
Freeland,	2	1	1	
Greensburg,	3	3		
Harrisburg,	51	49	2	
Hazleton,	2	2		
Homestead,	12	7	5	
Huntingdon,	1	1		
Johnsonburg,	1		1	
Johnstown,	21	23		1
Kane,	6	5	1	
Lancaster,	22	22		
Lansford,	1		1	
Latrobe,	2	2		
Lebanon,	11	11		
Lehighton,	1	1		
Lewistown,	6	6		
Lock Haven,	4	4		
McKeesport,	24	19	4	1
McKees Rocks,	4		4	
Mahanoy City,	7	4	2	1
Meadville,	4	3	1	
Middletown,	6	6		
Millvale,	6	4	2	
Milton,	3	3		
Minersville,	4	3	1	
Monongahela,	1	1		
Mt. Carmel,	11	11		
Mt. Pleasant,	5	5		
Nanticoke,	7	5	2	
New Brighton,	3	2		1
New Castle,	18	16	2	
Norristown,	16	14	1	1
North Braddock,	5	3	2	
Oil City,	6	6		
Old Forge,	3	2	1	
Philadelphia,	822	760	147	15
Phoenixville,	4	3	1	
Pittsburg,	267	146	74	47
Pittston,	2	2		
Plymouth,	5	3	2	
Pottstown,	14	11		
Pottsville,	6	5	1	
Punxsutawney,	3	3		
Reading,	67	64	3	
Rochester,	5	3	1	1
St. Clair,	5	4	1	
St. Mary's,	3	3		
Sayre,	1	1		
Scottdale,	3	3		
Scranton,	42	34	8	
Shamokin,	16	14	2	
Sharon,	3	1	2	
Shenandoah,	6	6		

TABLE 4—Continued.

	Total.	Native.	Foreign.	Nativity Unknown.
South Bethlehem,	8	4	4	.....
Steelton,	13	9	4	.....
Tanbury,	10	3	.....	1
Tamaqua,	2	3	.....	.....
Titusville,	4	3	1	.....
Tyrone,	9	9	.....	.....
Uniontown,	9	9	.....	.....
Warren,	1	1	.....	.....
Washington,	8	7	1	.....
West Chester,	13	13	.....	.....
West Pittston,	2	2	.....	.....
Wilkes-Barre,	9	.....	9	.....
Wilkinsburg,	8	7	1	.....
Williamsport,	29	29	.....	.....
Wilmerding,	2	2	.....	.....
York,	37	37	.....	.....
All boroughs having between 2,500 and 5,000 population,	171	156	15	.....
All boroughs having less than 2,000 population,	334	352	32	.....
Counties.				
Adams,	17	17	.....	.....
Allegheny,	54	43	11	.....
Armstrong,	25	23	2	.....
Beaver,	12	9	3	.....
Bedford,	21	21	.....	.....
Berks,	49	49	.....	.....
Blair,	35	34	.....	1
Bradford,	14	14	.....	.....
Bucks,	29	28	.....	1
Butler,	16	15	1	.....
Cambria,	29	26	3	.....
Cameron,	8	8	.....	.....
Carbon,	18	16	2	.....
Centre,	43	41	1	1
Chester,	35	33	.....	.....
Clarion,	15	15	.....	.....
Clearfield,	42	37	4	1
Columbia,	17	17	.....	.....
Crawford,	18	18	.....	.....
Cumberland,	2	2	.....	.....
Dauphin,	20	20	.....	.....
Delaware,	22	20	2	.....
Elk,	10	10	.....	.....
Erie,	8	8	.....	.....
Fayette,	4	3	1	.....
Forest,	72	66	6	.....
Franklin,	6	6	.....	.....
Fulton,	25	25	.....	.....
Greene,	10	10	.....	.....
Huntingdon,	19	19	.....	.....
Indiana,	27	26	1	.....
Jefferson,	22	22	.....	.....
Juniata,	33	27	6	.....
Lackawanna,	8	8	.....	.....
Lancaster,	7	3	2	2
Lawrence,	61	60	.....	1
Lebanon,	7	6	1	.....
Lehigh,	22	21	1	.....
Luzerne,	51	44	7	.....
Lycoming,	34	29	4	1
McKean,	9	9	.....	.....
Mercer,	4	4	.....	.....
Millin,	4	4	.....	.....
Monroe,	11	11	.....	.....
Montgomery,	9	9	.....	.....
Montour,	29	26	3	.....
Northampton,	3	3	.....	.....
Northumberland,	30	30	.....	.....
Perry,	19	16	2	.....
Pike,	16	16	.....	.....
Potter,	2	1	1	.....
Schuylkill,	6	6	.....	.....
Snyder,	48	44	4	.....
Somerset,	15	15	.....	.....
Sullivan,	28	27	1	.....
Susquehanna,	6	6	.....	.....
Tioga,	7	7	.....	.....
Union,	8	7	1	.....
Venango,	10	10	.....	.....
Warren,	9	9	.....	.....
Washington,	4	.....	4	1
Wayne,	34	29	.....	.....
Westmoreland,	10	10	.....	.....
Wyoming,	71	59	12	.....
York,	6	5	1	.....
York,	42	42	.....	.....

TABLE 5.

Plural Births, Twins, by Localities and Nativity of Mothers.

	Total.	Native.	Foreign.	Nativity Unknown.
Entire State,	1,832	1,259	569	4
Allegheny,	16	11	5	
Allentown,	9	5	4	
Altoona,	11	12	2	
Archbald,	3	3		
Ashland,	2	2		
Beaver Falls,	1	1		
Bethlehem,	3	3		
Bloomsburg,	1	1		
Braddock,	5	2	3	
Bradford,	3	2	1	
Bristol,	5	3	2	
Butler,	3	2	1	
Carbondale,	3	2		1
Carlisle,	1	1		
Carnegie,	5	2	3	
Chambersburg,	3	3		
Charleroi,	3		2	
Chester,	10	9	1	
Clearfield,	3	3		
Coatesville,	4	2	2	
Columbia,	3	2	1	
Conshohocken,	2	1	1	
Danville,	3	3		
Dickson City,	4	1	3	
DuBois,	2	2		
Dunmore,	3	1	2	
Duquesne,	2		2	
Easton,	16	14	2	
Edwardsville,	1	1		
Erie,	5	4	1	
Etna,	5	1	4	
Forest City,	7	2	5	
Franklin,	2	2		
Greensburg,	1	1		
Harrisburg,	16	16		
Hazleton,	1		1	
Homestead,	15	6	9	
Huntingdon,	2	2		
Jeanette,	2	1	1	
Johnsonburg,	3	2	1	
Johnstown,	18	14	4	
Lancaster,	4	3	1	
Lansford,	1		1	
Latrobe,	2		1	
Lebanon,	4	4		
Lewistown,	3	3		
Lock Haven,	2	2		
McKeesport,	17	7	10	
McKees Rocks,	6	5		1
Mahanoy City,	5	2	3	
Meadville,	3	3		
Millvale,	1	1		
Milton,	1	1		
Minersville,	2	1	1	
Mt. Carmel,	10	3	7	
Nanticoke,	2	1	1	
New Brighton,	2	1	1	
New Castle,	14	7	7	
Norristown,	1	1		
North Braddock,	4	3	1	
Oil City,	4	4		
Old Forge,	2	2		
Olyphant,	2	1	1	
Philadelphia,	323	174	149	
Phoenixville,	5	4	1	
Pittsburg,	79	38	39	2
Pittston,	7	6	1	
Plymouth,	3	2	1	
Pottstown,	4	2	2	
Pottsville,	3	1	2	
Punxsutawney,	3	2	1	
Reading,	30	25	5	
St. Clair,	2	2		
St. Mary's,	3	3		
Rayre,	1	1		
Scottdale,			4	
Scranton,	28	14	14	
Shamokin,	9			
Sharon,	4	3	1	
Sharpsburg,	4	3	1	
Shenandoah,	11	7	4	
South Bethlehem,	8	3	5	
Steelton,	4	3	1	

TABLE 5—Continued.

	Total.	Native.	Foreign.	Nativity Unknown.
Sunbury,	3	3		
Tarentum,	6	2	4	
Tyrone,	2	2		
Uniontown,	5	3	2	
Warren,	5	5		
Washington,	6	6		
Waynesboro,	2	2		
West Chester,	5	3	2	
West Pittston,	3	1	2	
Wilkes-Barre,	5		5	
Wilkinsburg,	4	4		
Williamsport,	7	5	2	
Wilmerding,	1	1		
York,	15	15		
All boroughs having between 2,500 and 5,000 population,	57	61	26	
All boroughs having less than 2,500 population,	204	153	51	
Counties.				
Adams,	4	4		
Allegheny,	32	18	14	
Armstrong,	16	15	1	
Beaver,	6	5	1	
Bedford,	7	6	1	
Berks,	15	15		
Blair,	7	7		
Bradford,	9	9		
Bucks,	7	6	1	
Butler,	8	7	1	
Cambria,	23	10	13	
Cameron,	1	1		
Carbon,	9	7	2	
Centre,	11	8	3	
Chester,	12	11	1	
Clarion,	10	10		
Clearfield,	22	15	7	
Clinton,	3	3		
Columbia,	3	3		
Crawford,	11	11		
Cumberland,	11	11		
Dauphin,	12	11	1	
Delaware,	7	4	3	
Elk,	8	4	4	
Erie,	4	4		
Fayette,	40	27	13	
Forest,	4	4		
Franklin,	4	4		
Fulton,	1	1		
Greene,	5	5		
Huntingdon,	6	6		
Indiana,	13	7	6	
Jefferson,	12	7	5	
Juniata,	5	5		
Lackawanna,	3	1	2	
Lancaster,	15	15		
Lawrence,	3	2	1	
Lebanon,	9	9		
Lehigh,	13	10	3	
Luzerne,	35	20	15	
Lycoming,	17	13	4	
McKean,	7	5	2	
Mercer,	9	7	2	
Mifflin,	6	6		
Monroe,	3	3		
Montgomery,	17	11	6	
Montour,	3	3		
Northampton,	6	6		
Northumberland,	10	8	2	
Perry,	6	6		
Potter,	4	2	2	
Schuylkill,	15	11	4	
Snyder,	5	5		
Somerset,	8	7	1	
Sullivan,	1	1		
Susquehanna,	2	2		
Tioga,	8	5	3	
Union,	2	2		
Venango,	6	5	1	
Washington,	7	4	2	
Wayne,	6	6		
Westmoreland,	40	23	17	
Wyoming,	3	3		
York,	13	13		

THE DIVISION OF MORBIDITY STATISTICS.

IN CHARGE OF

WILMER R. BATT, M. D.



THE DIVISION OF MORBIDITY STATISTICS.

COMMUNICABLE DISEASES.

By regulation, twenty-nine communicable diseases have been declared reportable to the Department of Health.

These diseases are as follows: Actinomycosis, Anthrax, Bubonic Plague, Cerebro-Spinal Meningitis, Chicken-Pox, Cholera, Diphtheria, Epidemic Dysentery, Erysipelas, German Measles, Glanders, Hydrophobia, Leprosy, Malarial Fever, Measles, Mumps, Pneumonia, Puerperal Fever, Relapsing Fever, Scarlet Fever, Small Pox, Tetanus, Trachoma, Trichiniasis, Tuberculosis, Typhoid Fever, Typhus Fever, Whooping Cough and Yellow Fever.

The following information has been required for each individual case: Date of report, name of patient, occupation, country nativity, age, sex, color, address, name of disease, date of onset, name of householder, number of school children in family, name of school attended, name and address of physician reporting.

During the year, reports of 88,320 cases, representing twenty-two of the above named diseases, were received. Of this number, 76,822 were reported from urban districts (cities and boroughs) and 11,498 from rural districts (townships).

Table 1 shows the number of cases reported by months from each of the above districts.

As affording a better method of comparison these returns have been expressed in rates per 100,000 of population for the entire State and for the same proportions in urban and rural districts, (Table 2).

The exhaustiveness of these reports as a whole is necessarily open to some question when it is considered that they represent the first attempt in this State to collect such statistics in a central bureau; that the list of reportable diseases has been very considerably extended, to include diseases not heretofore classed as reportable in many municipalities, and that absolutely no such system of reporting previously existed in any of our townships and in at least two-thirds of our boroughs. Furthermore, the slight regard in which some of the communicable diseases, such as chicken pox, measles, mumps and whooping cough are held makes it certain that many cases of these diseases occur which never come under the care of physicians and which are, therefore, never reported. It requires, however, but a glance at the mortality rates of both measles and whooping cough to find the serious character of these ailments and the important position they occupy in morbidity reports.

It is inevitable that these reports must grow in accuracy with each succeeding year, and, therefore, acquire additional value and significance.

Taken for just what they represent in the aggregate they afford a very fair conception of the colossal tribute levied upon our people by unnecessary and preventable illness.

Table 3 shows the total number of cases of each disease reported by months for the entire State and from urban and rural districts.

The important facts relating to each of the most prominent disease are to be found under the individual headings.

MORBIDITY TABLE 1.

Number of Cases of Communicable Diseases Reported from the Entire State and Urban and Rural Districts by Months.

Month.	Total.	Urban.	Rural.
Total,	88,320	76,822	11,498
January,	10,665	8,958	1,697
February,	12,547	11,001	1,546
March,	10,829	9,340	1,489
April,	9,382	8,079	1,303
May,	8,099	7,149	950
June,	4,858	4,420	438
July,	3,942	3,549	393
August,	4,065	3,665	400
September,	4,731	4,025	718
October,	5,985	5,060	925
November,	5,884	5,080	804
December,	7,338	6,506	832

MORBIDITY TABLE 2.

Rates per 100,000 of Population of all Communicable Diseases for Entire State and Urban and Rural Districts by Months.

Month.	State Rate.	Urban.	Rural.
January,	154.7	201.8	68.5
February,	182.1	247.5	63.7
March,	157.4	210.4	60.5
April,	136.2	181.8	52.9
May,	117.3	160.9	37.6
June,	70.5	99.8	17.0
July,	57.5	80.4	15.3
August,	59.2	83.0	15.3
September,	68.5	90.7	28.1
October,	86.8	113.9	37.1
November,	55.2	114.1	32.0
December,	106.3	146.9	32.0

MORBIDITY TABLE 3.
TABLE SHOWING THE NUMBER OF CASES OF COMMUNICABLE DISEASES REPORTED BY MONTHS FOR THE ENTIRE STATE AND FROM URBAN AND RURAL DISTRICTS.

	Aggre- gate	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Entire State,	68,320	10,655	12,547	10,829	9,382	8,069	4,858	3,942	4,085	4,733	5,988	5,884	7,238
Urban,	76,822	8,958	11,001	9,340	8,079	7,149	4,420	3,549	3,645	4,015	5,060	5,060	6,504
Rural,	11,498	1,697	1,546	1,489	1,303	950	438	393	400	718	928	804	832
Actinomycosis,	0	0	0	0	0	1	0	0	0	0	0	0	0
Urban,	0	0	0	0	0	1	0	0	0	0	0	0	0
Rural,	1	0	0	0	0	0	0	0	0	0	0	0	0
Total,	23	1	0	0	0	1	0	1	1	6	6	3	3
Anthrax,	17	0	0	0	0	0	0	1	1	4	4	2	2
Urban,	6	0	0	0	0	0	0	1	1	4	4	2	2
Rural,	11	0	0	0	0	0	0	0	0	0	0	0	0
Cerebro-Spinal Meningitis,	361	22	49	57	81	66	17	11	12	2	12	16	19
Urban,	254	19	37	46	64	49	17	8	12	0	12	16	19
Rural,	107	3	12	11	17	17	0	3	0	2	0	0	0
Chicken Pox,	2,969	409	477	365	272	241	149	64	17	37	119	304	495
Urban,	2,547	290	354	289	243	214	142	63	13	34	101	318	446
Rural,	422	119	91	68	29	27	7	2	4	3	18	86	149
Diphtheria,	10,870	1,642	885	852	793	698	546	437	461	901	1,680	1,488	1,213
Urban,	8,856	824	706	701	676	581	470	364	403	820	1,270	1,180	1,041
Rural,	1,914	218	179	151	117	104	76	71	59	181	319	308	171
Dysentery,	5	0	0	0	0	0	0	1	1	3	0	0	0
Urban,	2	0	0	0	0	0	0	1	1	3	0	0	0
Rural,	3	0	0	0	0	0	0	0	0	0	0	0	0
Erysipelas,	1,010	185	154	156	111	112	62	18	27	16	25	26	41
Urban,	858	152	138	137	103	102	52	15	22	10	21	23	31
Rural,	152	33	16	19	8	10	10	3	5	6	4	3	10
German Measles,	411	58	74	87	29	60	23	10	6	3	6	6	7
Urban,	215	7	12	74	50	21	18	7	3	1	5	5	6
Rural,	196	51	62	13	27	39	5	3	3	2	1	1	1
Hydrophobia,	8	3	1	1	1	0	0	0	1	1	0	0	0
Urban,	6	2	1	1	1	0	0	0	1	1	0	0	0
Rural,	2	1	0	0	0	0	0	0	0	0	0	0	0
Malarial Fever,	50	6	1	5	0	0	0	0	0	0	0	0	0
Urban,	30	4	1	3	0	0	0	0	0	0	0	0	0
Rural,	20	2	0	2	0	0	0	0	0	0	0	0	0
Measles,	23,729	4,150	5,672	4,721	3,469	2,841	1,125	472	471	841	2,122	411	640
Urban,	20,265	3,293	4,508	3,683	2,698	2,208	898	386	370	611	1,608	267	401
Rural,	3,464	857	1,164	1,038	801	633	227	92	101	230	514	144	239
Total,	1,197	112	211	273	191	191	102	42	11	10	19	46	65
Urban,	1,094	106	157	219	213	176	78	28	11	8	19	39	46
Rural,	277	42	54	54	40	15	24	4	0	2	4	7	9

MORBIDITY TABLE 5.

Distribution of Typhoid Fever According to Age Periods by Percentage to Total Cases.

	State.	Urban.	Rural.
Under 5 years,	4.7	4.9	3.6
5 to 9 years,	12.9	13.0	11.5
10 to 14 years,	14.2	14.3	12.7
15 to 19 years,	16.3	16.1	16.6
20 to 24 years,	17.7	17.6	18.2
25 to 29 years,	12.5	12.6	11.7
30 to 34 years,	7.8	7.9	7.5
35 to 39 years,	5.6	5.7	5.3
40 to 44 years,	3.3	3.2	4.0
45 to 49 years,	2.1	2.0	2.4
Over 50,	2.8	2.6	5.3

MORBIDITY TABLE 6.

Typhoid Fever by Nativity and Age Periods.

	All ages.	0-4.	5-9.	10-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70.	Un.
Native,	18,269	975	2,726	5,947	4,835	2,125	903	361	109	30	259
Foreign,	4,246	84	163	702	1,885	834	238	86	23	9	83
Unknown,	1,956	54	119	362	33	185	52	17	7	0	857

MORBIDITY TABLE 7.

Typhoid Fever by Color and Age Periods.

	All ages.	0-4.	5-9.	10-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70.	Un.
White,	22,425	1,025	2,933	6,761	6,655	2,962	1,192	451	136	38	372
Black,	957	78	114	239	301	127	36	11	3	0	19
Color unstat- ed,	1,089	10	30	110	59	55	15	2	0	1	807

MORBIDITY TABLE 8.

Typhoid Fever by Sex and Color.

	All colors.	White.	Black.	Other and unstat- ed
Total,	24,471	23,425	957	1,089
Males,	11,256	11,119	509	628
Females,	10,215	9,306	448	461

MORBIDITY TABLE 9.

Typhoid Fever Rates per 100,000 of Population for Certain Cities and Groups of Cities and Boroughs and for Rural Districts.

Group 1.	Philadelphia,	605
Group 2.	Pittsburg,	1,477
	Allegheny,	867
	Scranton,	619
Group 3.	All cities and boroughs between 50,000 and 100,000 population,...	186
Group 4.	All cities and boroughs between 25,000 and 50,000 population,....	407
Group 5.	All cities and boroughs between 10,000 and 25,000 population,....	229
Group 6.	All cities and boroughs between 5,000 and 10,000 population,....	297
Group 7.	All cities and boroughs between 2,500 and 5,000 population,....	147
Group 8.	All cities and boroughs less than 2,500 population,	208
Group 9.	Rural Districts (all townships),	81

DIPHTHERIA.

10,870 cases of diphtheria were reported during the year. Of this number 8,956 were reported from urban and 1,914 from rural districts. A comparison of the number of cases reported for the several months of the year shows that a marked preponderance occurred during the school term (September to June), and that 57.7 per cent. of all cases occurred during the school age.

That school life and not season plays an important part in the dissemination of diphtheria is better shown by the rapid rise in the number of cases occurring immediately upon the convening of our schools, which in urban districts occurs in September, while the greatest proportionate increase in rural districts where the schools open later is not until October. (Table 10.)

The distribution by color, nativity, sex and age periods show a marked degree of uniformity.

The age distribution according to locality, however, shows a much lower percentage of cases under ten years of age in rural sections than in urban.

MORBIDITY TABLE 10.

Diphtheria by Months, Urban and Rural.

	Total.	Urban.	Rural.
Entire year,	10,870	8,956	1,914
January,	1,042	824	218
February,	855	706	179
March,	852	701	151
April,	703	576	127
May,	688	584	104
June,	546	470	76
July,	437	366	71
August,	461	402	59
September,	994	826	168
October,	1,589	1,270	319
November,	1,458	1,190	268
December,	1,215	1,041	174

MORBIDITY TABLE 11.

Distribution of Diphtheria According to Age Periods by Percentage to Total Cases.

	State.	Urban.	Rural.
Under 5 years,	32.9	37.2	24.4
5 to 9 years,	37.5	37.4	34.6
10 to 14 years,	17.3	14.5	19.4
15 to 20 years,	5.0	1.4	8.0
20 to 24 years,	2.9	2.3	3.8
25 to 34 years,	2.4	1.8	2.4
35 to 44 years,	1.6	1.0	2.4
45 to 54 years,	1.0	0.7	1.6
55 to 64 years,	1.1	0.7	2.4
65 years and over,			

TUBERCULOSIS.

The reports of tuberculosis, of which there were 5,234, are obviously very incomplete when the number of deaths from this disease are considered.

The rather prolonged duration of the disease, the non-employment of medical advisers, or the employment of a succession of them, the frequent shifting of a place of residence, the fear of enforced restrictive measures so far as employment and habits are concerned and many other causes all operate against the accurate reporting of tuberculosis.

The absolute necessity for these reports as a basis for an intelligent campaign of extermination of this disease is so obvious as to require no comment, and this fact coupled with a compelling force must lead to the gradual improvement in the statistics of this particular disease.

The statistics relating to age distribution, sex, color, nativity and occupation of the 5,234 cases reported is of value as indicating the conditions actually existing in that number of cases and which may be considered as fairly representative of the total cases in existence.

Distribution of Tuberculosis According to Age Periods by Percentage to Total Cases.

	State.	Urban.	Rural.
Under 5 years,	3.0	3.3	0.6
5 to 9 years,	1.5	1.6	1.3
10 to 14 years,	1.9	2.0	1.3
15 to 19 years,	8.8	8.8	9.6
20 to 24 years,	14.7	14.8	13.3
25 to 29 years,	15.4	15.0	17.5
30 to 34 years,	13.3	13.1	14.2
35 to 39 years,	11.7	11.8	10.3
40 to 44 years,	8.6	8.6	8.9
45 to 49 years,	7.0	7.0	8.9
50 to 54 years,	5.0	4.9	6.9
55 to 59 years,	4.0	3.9	4.8
60 to 64 years,	2.1	2.2	1.2
65 years,	3.0	3.0	3.2

Distribution of Tuberculosis by Nativity and Age Periods.

	All ages.	0-4.	5-9.	10-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70.	Un.
Native,	4,100	131	68	445	1,172	976	602	343	122	59	182
Foreign,	634	9	4	45	194	152	102	64	34	16	14
Unknown, ...	500	3	3	19	45	44	30	15	9	1	331

Distribution of Tuberculosis by Color and Age Periods.

	All ages.	0-4.	5-9.	10-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70.	Un.
White,	4,564	125	66	453	1,299	1,081	682	389	158	76	225
Black,	334	17	9	54	102	72	41	27	5	0	7
Color unstat- ed,	336	1	0	2	10	19	11	6	2	0	285

Distribution of Tuberculosis by Sex and Color.

	All colors.	White.	Black.	Other and unstat- ed colors.
Total,	5,234	4,564	334	336
Males,	2,872	2,509	179	184
Females, ...	2,362	2,055	155	152

MEASLES.

Measles was epidemic throughout the State during the early months of the year, a total of 23,729 cases being reported, of which number 21,792 or 91.8 per cent. occurred during the first six months.

This affection has been popularly looked upon as one of the inevitable diseases of childhood and heretofore none or but slight effort has been made to restrict its occurrence. It is not too much to say, however, that no disease is more productive of serious sequelae.

The impaired hearing and eyesight and the chronic respiratory affections that so sadly interfere with the normal, physical and mental development of children are in the great majority of instances directly traceable to previous attacks of measles. While it is evident that in addition to the very large number of cases reported there must have been many unreported cases, that were unseen by physicians, the aggregate when considered in connection with the direct mortality from this affection and the serious after effects above noted amply justify the classification of measles as a dangerous communicable disease and the employment of restrictive measures for its limitation.

The number of cases and monthly distribution of German measles shows a rather striking proportionate rate to measles.

WHOOPIING COUGH.

What has already been said concerning the slight regard in which measles has been held is equally true of whooping cough, and it follows that reports of this disease are more or less incomplete.

A comparison of the cases by months shows that school life does not exert the same influence on this affection that it does in either diphtheria or scarlet fever as the greatest proportionate number of cases occurred in the midsummer months.

OTHER DISEASES.

A total of 73 cases of small-pox occurred during the year in different localities scattered over the length and breadth of the State. The broad distribution rather than the number of cases indicate that the infective material of this disease is widely disseminated and that a large unvaccinated proportion of our population would afford abundant opportunity for its propagation.

While chicken-pox has very little significance, so far as mortality or serious sequelae are concerned, the disastrous results that have occurred through a confusion of this disease with small-pox of a mild type, gives it rather a peculiar importance which it would not otherwise have and amply justifies its being classed as reportable.



THE DIVISION OF MARRIAGE STATISTICS.

IN CHARGE OF

WILMER R. BATT, M. D.



THE DIVISION OF MARRIAGE STATISTICS.

MARRIAGES.

59,327 marriages were recorded as having been performed throughout the State during 1906.

These records consist of transcripts containing the information derived from the marriage license dockets of the Clerks of the Orphans' Courts in the several counties, together with the returns as made by the persons performing the ceremonies, and, therefore, constitute a record of marriages actually performed and returned to the proper court officials as required by law.

In the collection of these statistics the Department has been compelled to rely entirely upon the provisions of the several acts of Assembly requiring that before any marriage can be legally solemnized a license shall have been procured from the Clerk of the Orphans' Court of the county wherein one or both of the contracting persons reside, or wherein the marriage ceremony is to be performed, and that the person performing a marriage ceremony shall within thirty days from the date thereof make a return of such fact to the Clerk of the Orphans' Court of the county in which the license was issued.

These acts have apparently been drawn with reference solely to the legal aspects of marriages, the only information required for the issuance of a license being satisfactory evidence as to age, the consent of parent or guardian where either of the applicants are under twenty-one years, if a previous marriage existed, the nature of its dissolution and whether the applicants are beyond the prohibited degree of consanguinity.

The items of statistical importance as to the nativity or color are not required, although information as to nativity has been secured in a number of the counties.

The number of licenses issued in the several counties of the State when compared with the number of returns would indicate that there is not an absolute observance of the law in the matter of prompt report of marriages by those authorized to perform the ceremony.

The validity of a marriage license in any part of the State, coupled with the fact that there is no statutory limitation to the life of a marriage license, tend to add to the difficulty in pursuing delinquent returns.

If no return of a marriage ceremony is made to the clerk of the court issuing the license, he has no means to discover the fact as to whether the ceremony authorized by such license has actually taken place and consequently has no resources for the enforcement of the penalties provided for the non-return of a marriage by the person performing the same, inasmuch as the mere fact of no return is hardly sufficient under these circumstances to warrant an investigation.

In the county of Philadelphia, 14,020 marriage licenses were issued during 1906; there were returns, however, of but 12,706 ceremonies. The difference between these numbers is so great as to make it unlikely that they were all unused.

The same relative condition exists in other counties in the State although in a somewhat lesser degree. The fact that marriages may be contracted in several of the states immediately adjoining Pennsylvania without the formality of a license attracts numerous persons, with the result that many records of marriages of residents are lost to our statistics.

This fact in connection with the non-compliance of the law in making returns naturally makes the marriage rate computed on the basis of marriage returns less than the actual rate. Unfortunately we have no means of accurately ascertaining the latter. According to the records received in the De-

partment of Health the number of persons married per 1,000 of population was 17.1. This rate compares with similar rates in some of our other states and foreign countries as follows:

Rhode Island, 1905,	19.1
New Jersey, 1906,	19.1
Connecticut, 1906,	16.0
Maine, 1905,	17.5
England and Wales,	14.8
Austria, 1903,	15.0
France, 1904,	15.6
German Empire,	16.4

The expression of marriage rates in proportion to the total population, while being the method very generally employed, is not the best basis for purposes of comparison between states or countries; as the true marriage rate must be directly influenced by the number of persons of marriageable age of both sexes, and the population of earlier ages should, therefore, be eliminated from consideration. In fact, the inclination for marriage is better expressed by the number of persons married in proportion to the number of persons of either sex unmarried but of marriageable age. By the latter method we have a fair measure of the intensity of the marriage movement exclusively among those capable of contracting marriages.

The number of unmarried males of marriageable age in Pennsylvania in 1906 was approximately 937,630; therefore, 63 males in every 1,000 unmarried, contracted marriage, or in other words, one in every 16. During the same year there were 739,315 unmarried females of marriageable age, of which number 80 in every 1,000 or one in every 12.5 contracted marriage.

The excess of unmarried males of marriageable age is very largely due to the preponderance of foreign born males of that age. While the failure to secure a statement of nativity in 13 per cent. of all marriages recorded makes an accurate comparison of the marriage rate between native and foreign born impossible, yet such data as has been supplied indicate that the rate among the foreign born is considerably higher than among the native. The deficiency of foreign born females of marriageable age is somewhat overcome by the marriage of native females to foreign males, 1,289 such marriages having occurred in which the nativity has been recorded.

In those countries in which marriage statistics have been accurately recorded over an extended period of years two facts seem to be established; first, that the intensity of the marriage movement seems to bear a direct relation to the national prosperity, being lowest in periods of commercial depression; second, that the average age at which marriage is contracted has been steadily increasing. The latter fact is of particular significance in connection with birth rates.

The average age of brides in Pennsylvania in 1906 was 24.5 years and of grooms 26.4 years.

The number of first marriages was brides 55,767 and grooms 54,973.

In view of the fact that licenses to wed are issued in 67 different counties in the State and that licenses granted in one county are good in any of the other counties, the establishment of a marriage by reference to the county records may necessarily involve the search of records in all counties. The records assembled in this office have, therefore, been indexed and bound so that they may be available at any time for future reference.

The greatest number of marriages contracted in any single month was in June, and the least number in March.

In Table 1 are shown the number of marriages in each county of the State by months, with totals for the entire State.

In Table 2 the marriage rate for each county is shown.

Table 3 shows the ages of brides and grooms and the nativity for each age period.

Table 4 gives the percentage of brides and grooms by age periods and Table 5 the percentage of marriages in each month of the year.

TABLE 1.
MARRIAGES BY MONTHS FOR EACH COUNTY OF THE STATE.

	Aggregate.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.
Entire State,	59,327	4,373	4,797	2,993	4,928	4,082	7,618	4,013	4,339	5,933	6,054	5,900	4,422
Adams county,	217	22	16	8	21	8	19	16	12	14	32	28	23
Allegheny county,	9,025	734	820	329	725	637	1,217	707	702	894	943	966	440
Armstrong county,	537	47	37	27	31	21	3	3	50	41	53	44	44
Baldwin county,	547	40	43	26	29	23	6	5	52	63	52	44	52
Beaver county,	215	15	16	14	24	19	19	18	22	20	21	22	26
Berkshire county,	1,687	108	128	119	141	124	178	96	119	168	151	178	177
Blair county,	968	79	71	64	68	65	1,0	63	71	98	96	76	87
Bradford county,	269	17	15	16	22	12	41	17	23	24	32	19	31
Bucks county,	412	32	37	34	35	24	57	18	34	36	39	41	25
Butler county,	503	33	45	28	39	35	80	25	40	47	50	47	39
Cambria county,	1,387	116	133	42	87	116	168	117	96	156	146	146	68
Cameron county,	61	6	3	4	3	3	12	10	2	6	5	3	4
Carbon county,	387	35	46	19	27	19	38	27	37	39	35	37	32
Centre county,	339	22	37	19	27	15	37	32	16	34	29	30	38
Chester county,	777	107	139	92	133	119	44	15	13	20	26	10	23
Clinton county,	239	11	14	12	19	19	28	13	11	17	22	17	17
Columbia county,	654	47	43	35	57	44	78	53	40	63	62	70	57
Crawford county,	242	23	13	16	27	23	19	22	16	20	19	19	27
Cumberland county,	347	23	32	19	42	27	36	26	17	31	30	33	29
Dauphin county,	416	26	28	24	46	34	61	26	39	41	37	23	31
Delaware county,	384	35	28	45	46	33	33	33	27	31	32	39	35
Elk county,	1,439	119	94	107	146	96	184	68	115	131	117	144	118
Erie county,	855	51	58	45	105	50	149	21	105	76	85	67	67
Fayette county,	184	18	14	5	12	14	28	18	20	14	20	21	10
Franklin county,	690	38	48	32	44	53	132	44	50	74	70	68	42
Greene county,	1,214	82	107	47	79	109	143	116	57	114	113	124	93
Hampden county,	384	31	32	31	30	22	38	17	24	31	32	42	4
Hartford county,	175	7	6	6	8	6	3	3	7	15	5	21	23
Harrison county,	175	7	6	6	8	6	3	3	7	15	5	21	23
Huntingdon county,	310	23	12	14	29	9	18	9	15	16	22	21	20
Indiana county,	471	29	37	32	33	23	35	33	31	69	47	40	40
Jefferson county,	476	28	26	23	44	34	64	45	32	50	40	42	48
Juniata county,	141	13	9	15	13	12	16	13	9	12	12	10	10
Lackawanna county,	2,142	154	173	68	118	177	229	109	118	319	317	258	112
Lancaster county,	1,202	107	92	59	112	82	145	65	76	103	92	177	162
Lawrence county,	373	30	41	40	35	45	90	41	52	45	56	50	34
Lebanon county,	345	29	44	34	34	48	90	41	52	45	56	50	34
Lehigh county,	1,586	144	103	68	144	126	184	136	140	178	182	125	46
Lucerne county,	2,186	154	206	88	145	126	198	162	151	229	229	241	180
Lyscoming county,	564	30	43	40	68	40	67	27	49	53	57	48	43

TABLE 1—Continued.

	Aggregate.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.
McKean county,	179	7	9	8	13	15	21	11	17	20	15	23	20
Mercer county,	530	29	41	29	34	43	65	39	46	53	71	71	35
Mifflin county,	268	19	22	27	18	8	18	17	18	23	33	26	33
Monroe county,	182	8	9	13	11	7	27	12	13	20	21	15	26
Montgomery county,	1,115	83	78	55	109	57	167	63	71	115	130	108	94
Montour county,	99	12	6	16	14	6	14	2	5	0	8	8	5
Northampton county,	991	57	74	57	74	71	145	63	86	110	88	87	79
Northumberland county,	812	57	93	48	67	63	96	46	69	86	67	61	60
Perry county,	154	12	17	13	11	11	17	7	11	8	19	8	8
Philadelphia,	12,765	936	983	516	1,139	685	1,982	724	917	1,202	1,315	1,344	982
Pike county,	25	1	0	0	2	0	1	1	4	1	4	1	1
Potter county,	120	8	11	6	4	11	19	1	13	14	14	13	10
Schenectady county,	1,554	104	141	79	136	83	178	124	131	191	149	153	85
Schoharie county,	164	17	16	12	19	5	12	7	13	13	12	11	32
Snyder county,	501	44	40	24	33	24	57	44	36	50	45	45	45
Somerset county,	66	1	6	6	7	6	10	7	0	4	11	1	7
Susquehanna county,	230	13	17	14	23	18	21	17	8	32	30	20	22
Tioga county,	296	19	12	8	25	13	29	12	11	24	15	15	17
Union county,	133	9	13	13	7	8	16	8	5	16	11	8	19
Venango county,	433	25	27	20	44	29	67	36	28	46	44	40	38
Warren county,	14	17	16	10	17	10	163	31	13	31	110	20	11
Washington county,	1,115	96	1	4	10	8	23	10	59	36	110	30	72
Wayne county,	153	7	1	5	12	2	49	1	10	26	10	10	10
Westchester county,	1,594	123	133	70	117	133	186	130	137	184	152	149	94
Wyoming county,	112	9	9	10	9	8	10	11	10	9	17	17	4
York county,	1,119	99	88	99	88	84	83	67	67	92	115	100	124

TABLE 2.

Number of Persons Married to Each 1,000 of Population for Each County.

Adams,	12.3	Lackawanna,	19.2
Allegheny,	20.1	Lancaster,	15.7
Armstrong,	19.2	Lawrence,	16.8
Beaver,	18.2	Lebanon,	19.0
Bedford,	12.1	Lehigh,	24.4
Blair,	20.8	Luzerne,	15.1
Bradford,	9.0	Lycoming,	14.3
Berks,	19.5	McKean,	6.6
Bucks,	11.5	Mercer,	18.1
Butler,	17.5	Mifflin,	21.3
Cambria,	22.0	Monroe,	16.7
Cameron,	17.3	Montgomery,	15.1
Carbon,	16.2	Montour,	12.7
Centre,	16.7	Northampton,	18.3
Chester,	15.1	Northumberland,	16.2
Clarion,	13.4	Perry,	11.7
Clearfield,	14.9	Philadelphia,	17.7
Clinton,	16.1	Pike,	5.6
Columbia,	16.1	Potter,	7.4
Crawford,	13.1	Schuylkill,	17.0
Cumberland,	14.7	Snyder,	18.9
Dauphin,	23.2	Somerset,	17.8
Delaware,	16.1	Sullivan,	10.6
Elk,	11.4	Susquehanna,	11.4
Erie,	13.1	Tioga,	8.3
Fayette,	19.0	Union,	15.1
Forest,	8.0	Venango,	16.8
Franklin,	13.5	Warren,	9.2
Fulton,	11.2	Washington,	19.6
Greene,	12.3	Wayne,	10.1
Huntingdon,	17.8	Westmoreland,	17.1
Indiana,	22.0	Wyoming,	12.5
Jefferson,	14.1	York,	17.8
Juniata,	17.9		

TABLE 3.

MARRIAGES BY NATIVITY AND AGES OF BRIDES AND GROOMS.

Ages.	Brides.				Grooms.			
	Aggregate.	Native.	Foreign.	Nativity unstated.	Aggregate.	Native.	Foreign.	Nativity unstated.
Aggregate,	59,327	36,000	13,532	7,795	59,327	36,848	14,821	7,658
Under 15 years,	72	44	14	14	3	1	2	.....
15 to 19 years,	11,122	7,594	1,625	1,903	1,903	1,450	87	366
20 to 24 years,	29,237	17,273	8,193	3,321	24,731	15,469	5,874	3,388
25 to 29 years,	10,785	7,168	2,082	1,535	18,271	10,518	5,467	2,286
30 to 34 years,	8,976	2,780	732	464	7,004	4,706	1,652	616
35 to 39 years,	1,807	1,189	385	233	3,253	2,057	774	422
40 to 44 years,	1,019	678	219	122	1,586	1,001	397	188
45 to 49 years,	639	391	141	97	1,074	665	271	138
50 to 54 years,	317	196	70	51	605	410	123	72
55 to 59 years,	175	112	34	29	401	250	89	62
60 to 64 years,	94	61	16	17	282	180	56	46
65 to 69 years,	36	21	11	4	124	76	18	30
70 to 74 years,	12	9	1	2	69	54	4	11
75 years,	46	34	9	3	21	11	7	3

TABLE 4.

The Percentage of Brides and Grooms in Each Age Period to Total Brides and Grooms.

	Brides.	Grooms.
Under 15 years,	0.12	....
15 to 19 years,	18.3	3.2
20 to 24 years,	49.3	41.7
25 to 29 years,	18.2	30.8
30 to 34 years,	6.7	11.8
35 to 39 years,	3.1	5.5
40 to 44 years,	1.8	2.6
45 to 49 years,	1.0	1.8
Over 50 years,	1.0	2.6

TABLE 5.

The Percentage of Marriages in Each Month of the Year to Total Marriages.

January,	7.4
February,	8.1
March,	5.0
April,	8.3
May,	6.8
June,	12.8
July,	6.8
August,	7.4
September,	10.0
October,	10.2
November,	9.8
December,	7.4

THE DIVISION OF SANITARY ENGINEERING.

F. HERBERT SNOW, C. E., Chief Engineer.



THE DIVISION OF SANITARY ENGINEERING.

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Blank forms of information required of municipal and of private corporations relative to water works and sewerage were prepared, adopted by the Department and subsequently sent out.

Six hundred and seventy-two reports were received. Four hundred and sixty-two of them were from municipal corporations and two hundred and ten were from private corporations.

The municipal returns comprised two hundred and twenty-five water supply reports and two hundred and thirty-seven sewage disposal reports.

The private corporation reports related to two hundred and three water works and seven sewer systems.

The Department has therefor on file information obtained in this formal way relative to water supply in four hundred and twenty-eight places, and relative to sewage disposal in two hundred and forty-four places.

Plans.

On December thirty-first, 1906, there were 1,527 official plans registered in the Department, of which 892 had accompanied water works and sewerage reports, 607 had accompanied water works and sewerage applications and 28 were of a miscellaneous character. The office working maps and those used in field engineering and inspection work are not included in the above.

Petitions and Complaints.

The Commissioner of Health, in addition to the powers conferred by the new law, has all the powers conferred and must perform all the duties heretofore imposed by law upon the former State Board of Health, or any member, committee, or officer thereof, including the secretary. The work of supervising the general interests of the health and lives of the citizens of the Commonwealth has been done in part in answer to petitions and complaints and requests for advice. The Commissioner's instructions to give prompt attention to petitions, complaints and requests have been complied with in so far as the Department force made possible.

Hundreds of communications relative to stream pollution by sewage, or by industrial waste, or with respect to unsanitary conditions, inferior water supply or ice supply, and respecting sewers, sewage disposal, water supply and general sanitation have received attention.

Sixty-two requests for advice relative to sewerage and sewage disposal, and 30 requests for advice relative to water supply have been received and acted upon, often only after a study of the local situation and thorough investigation. Various nuisances have been abated on investigation and service of formal notification.

Seven cases were referred to local Boards of Health for attention, namely:

Stream pollution, Elizabethtown.
Improper disposal of sewage: Laporte; Harrisburg, 2 cases; Polk.
Refuse dump, Lewistown.
Stagnant pool, Harrisburg.

Six cases were referred to the County Medical Inspector, namely:

Stream pollution, Chartiers township, Allegheny Co.
Reservoir inspection, Hazlehurst, McKean Co.
Dead animals, Valley township, Montour Co.
Well pollution, Lancaster, Lancaster Co.
Marsh land, Forty Fort, Luzerne Co.
Slaughter house, Connellsville, Fayette Co.

The improper disposition of sewage in Lower Yoder township, Cambria county, was made the subject of investigation and abatements by officer E. T. Edwards, as more fully appears elsewhere herein.

One hundred petitions and complaints were made the subject of special investigation and report by the Engineering Division. Sixty-seven of these commanded the services of the engineers and thirty-three the services of field inspectors, as more fully hereinafter set forth under special work. Classified, these subjects were as follows:

Nuisances in streams by sewage pollution,	33
Impure water supply,	37
Sewage systems,	13
Stagnant water,	5
Night soil,	1
Rendering and slaughtering establishments,	6
Ice supply,	1
Nuisances in streets by sewage,	4

100

The localities of the cases investigated are shown in the following statement:

Nuisances in Streams by Sewage Pollution.—Brush Run, Blair county (three complaints) Graffins Run, Lycoming county; Pennypack, Neshaminy and Ithan Creeks, near Philadelphia; Lancaster, Elizabeth, Ashley, Sunbury (two complaints), Devon, Washington, Wayne, Tuna, St. Davids, Springdale, Huntingdon, Coatesville, Lebanon, Wilkinsburg, Connellsville, Penn township, Natrona, Indiana, York, West View, Darby Creek, Berwyn, Ardmore, Gates Hollow and Osceola.

Impure Water Supply.—Coudersport, West Conshohocken, Montrose, Warren (two complaints), Norristown, South Renovo, Coatesville, South Bethlehem, Dauphin, Pittsburg (two complaints), Cambridge Springs, Johnsonburg, Franklin, Westtown, Bristol, Lancaster, Lebanon, Chambersburg, Kutztown, Johnstown (two complaints), Allentown (two complaints), Saylorsburg, Latrobe, Cumru township (two complaints), Mauch Chunk, Honesdale, Punxsutawney, Hatboro, Windber, Wyomissing and Greenville.

Sewerage Systems.—Derry (two complaints), Cambridge Springs, Ridgway, Aspinwall, Doylestown, Oil City, South Bethlehem, Lawrenceville, Union City, Meadville and Jersey Shore.

Stagnant Water.—Emaus, Highspire, Shickshinny, Swatara and Gouldsboro.

Night Soil.—Morrisville.

Rendering and Slaughtering Establishments.—Harrisburg, Lebanon, Beaver, New Castle, Greenville and Hickory township.

Ice Supply.—Blair county, near Hollidaysburg.

Nuisances in Streets by Sewage.—Wilkins, Stowe and Scott townships and Hawley.

Orders of Abatement.

To prevent causes of disease and mortality, so far as the same may be caused by public menaces and nuisances, more especially outside of municipalities on the water sheds of the State, the Commissioner of Health has the power and authority to order such nuisances and menaces to be abated and removed. Upon examination made by any person duly authorized by the Commissioner so to do, information as to facts is submitted to this office, and subsequently an order to abate or remove may be issued. These orders are signed by the Commissioner and served by the field officers. The abatements listed below were had by formal notification. Many hundreds of properties have been put in sanitary condition on inspection and verbal request by the field officers.

Four hundred and eighty-three written orders have been prepared and issued. The cases were investigated or reported, or the notices served by the following officers: J. W. Downes, Henry Andrews, John J. Considine, C. H. Cummings, H. N. Blunt, E. T. Edwards, M. K. Ely, County Medical Inspectors and local agents.

Drafting.

The drafting force has been limited to one man, except when assistant engineers and field inspectors may have temporarily engaged in the preparation of plans in connection with work to which they were specifically assigned. J. L. W. Gibbs was appointed and assumed the duties of Chief Draftsman on March 1st, 1906.

During the year he has made various county and district maps. The water sheds of the Two Lick, Wissahickon, Pennypack, Loyalhanna and Tacony Creeks and tributaries of the Beaver River, and of the Allegheny and Delaware Rivers, have been plotted for the use of field officers. Enlargement of plans of the Shenango River drainage basin and of the Schuylkill River basin in Montgomery county have also been made for similar uses.

Special inspection of the water sheds of the Clymer Water Company and of the Middletown Water Company, of the works of the Hatboro Water Company, and of the sewers and pollutions in Pottstown, Montgomery county, have required the drawing of special maps of these places.

Maps of twenty-seven different counties, each showing townships, boroughs, cities, post offices, villages, railroads, street car lines and streams, have also been prepared with care. They are to serve as a basis for general reference and more particularly as a foundation for future map making of districts within the county. Some one hundred and thirty rough trial sheets for such separate districts for all counties but Philadelphia—embodying an approximate total of eight hundred divisions—were prepared and filed for reference.

In connection with the Delaware River drainage area map, statistics of population, water works, sewerage and existing stream pollutions were compiled, as appears elsewhere herein.

Relative to advice sought by written request respecting stream pollution and preventive measures, proper consideration of the questions involved has necessitated some map making, among which cases may be mentioned the sewerage at Sunbury, Siverly, Harrisburg, Ashley, Emaus, Ligonier and Cambridge Springs.

The large Pennsylvania State map, twelve feet long by six feet high, painted on wooden surface and supported by side standards—black-board fashion—and in daily use in the office of the Commissioner of Health, was made during the year at spare moments. It serves a useful purpose and admits of changes or additions thereto without disfiguring the whole map. Ultimately the entire first cost will have been saved by this feature alone.

Localities in Pennsylvania examined by the Department's experts and found to be infected with malaria producing mosquitoes have been properly designated on a map prepared for this purpose.

III. ENGINEERING.

Much of the engineering work has been the reviewing of plans submitted to the Commissioner of Health for approval of proposed sewerage and water works systems, or of extensions to existing ones, and the making of investigations and reports in relation thereto.

One hundred and fifty-five sewerage and water works applications have been received, of which 34 pertained to water works, 7 being submitted by municipal corporations and 27 by private corporations. The remaining 121 applications pertained to sewerage systems and sewage disposal works, either single or combined, of which 105 were submitted by municipal corporations and 16 were submitted by private corporations.

The water works cases comprised 11 ground water sources and 24 surface water sources. In one of the latter cases only is the water filtered artificially, namely, at Harrisburg. In two of the latter cases only was it contemplated to filter the water, namely, at Bristol, works, owned by the Bristol Water Company, and Clymer Water Company of Indiana.

The sewerage and sewage disposal cases comprised 39 separate systems receiving sewage only and 59 combined systems receiving both sewage and storm water, 9 separate and combined and 14 sewage disposal plants. The latter arranged in order of date of application are as follows:

1. New Wilmington borough, Lawrence county.
2. Wynnewood Manor, Walter B. Smith, Lower Merion township, Montgomery county.
3. Devon Village, Wendell & Treat, Easttown township, Chester county.
4. Dermady Sanatorium near Morton, Delaware county.
5. Pennsylvania Glue Company, Springdale, Allegheny county.
6. Wayne Sewerage Company, Wayne, Radnor township, Delaware county.
7. West Chester borough, Chester county.
8. State Institution for Feeble Minded and Epileptic, near Spring City, Chester county.
9. Bambaer Hospital, Philadelphia.
10. Washington borough, Washington county.
11. Reading City, Berks county.
12. County Almshouse, Crawford county.
13. Hanover Drainage Company, Hanover borough, York county.
14. County Work House, Allegheny county.

One hundred and thirteen of the 155 applications have been examined and reported upon. In 74 cases conclusions have been reached and a permit or decree duly issued by the Commissioner of Health.

Of the 74 cases, 23 relate to water works and 51 to sewerage or disposal works.

With respect to water works decrees, 12 embraced surface sources of which in 4 cases adequate purification by filtration was required and 11 embraced ground sources of which in one case, Citizens Water Company, purification by filtration was required. The 5 cases where filtration was required are as follows:

1. Mechanicsburg Gas & Water Company, Cumberland county.
2. West Pittsburgh Water Company, West Pittsburgh, Lawrence county.
3. North East borough, Erie county.
4. Bristol Water Company, Bristol borough, Bucks county.
5. Citizens Water Company, Kittanning borough, Armstrong county.

With respect to the remaining decrees, those relating to disposal works comprise numbers 4 to 8 inclusive in the above table, and the other 46 relate to sewers and ultimate treatment plants as more fully hereinafter appears. The first 3 sewage disposal applications were dismissed. The last 6 are pending, also 61 sewer applications and 11 water works applications, making a total of 78 now before the Department, of which 36 have been investigated.

WATER WORKS, PERMITS AND DECREES ISSUED BY THE COMMISSIONER OF HEALTH UP TO JANUARY 1st, 1907.

This work has been done under Act 182 approved April 22nd, 1905. The law is entitled "An Act to preserve the purity of the waters of the State for the protection of the public health." The term, "waters of the State" is defined to include all streams and springs, and all bodies of surface and of ground water, whether natural or artificial within the boundaries of the State.

Acting under this law which prescribes that no water works for the supply of water to the public shall be constructed or extended or an additional source of

supply be secured, without a written permit to be obtained from the Commissioner of Health, the scope of inquiry in each case has been strictly confined to whether the supply be prejudicial to public health.

In connection with the subject, it may be important to know about private wells and springs in the town.

For the dissemination of information, the permits issued by the Commissioner set forth quite fully the local situation leading up to the conditions under which an additional source of supply or an extension of existing water works will not be prejudicial to public health.

The stipulations refer to provisions for removal of sources of pollution, protective measures such as sanitary control of water sheds, and reports thereof, efficient operation of purification works, remedial measures to be adopted by approval or advice of the Commissioner of Health in case the supply or any part of the water works system becomes prejudicial to the public health and other matters, all appearing in the various cases hereinafter set forth, and arranged alphabetically.

SEWERAGE AND SEWAGE DISPOSAL PERMITS AND DECREES ISSUED BY THE COMMISSIONER OF HEALTH UP TO JANUARY 1st, 1907.

This work has also been done under Act 182 of 1905. This law is a distinct departure in Pennsylvania State Medicine, in that it provides for State prevention of water borne diseases. Formerly the powers committed by statute to the State Board of Health relative to regulations tending to limit the spread of infection by water carriage were advisory only. It was within the Board's sphere and duty at all times to recommend to local authorities having the usual powers in matters relating to the preservation of public health, the adoption of effective sanitary and preventive regulations and measures in anticipation of future or possible epidemics.

Sewage, in the Act, is defined as "Any substance that contains any of the waste products or excrementitious or other discharges from the bodies of human beings or animals." Slops, sink and wash water come within the meaning of the term. The prevailing idea that laundry water and drainage from bath tubs is not sewage is gradually being dispelled; but not without some educational effort in making clear that such wastes very frequently contain pathogenic poison, and that they are often discharged onto the surface of the ground near springs and wells, or into street gutters, and thence to streams used below as sources of public water supply. Also that some manufacturing wastes are not sewage as above defined; but if a menace to public health, they are subject to regulation at the discretion of the Commissioner of Health.

The law stipulates that no person, corporation or municipality shall place or permit to be placed, or discharge or permit to flow into any of the waters of the State, any sewage except as specially provided; but the Act does not apply to waters pumped or flowing from coal mines or tanneries. Neither does it prevent the discharge of sewage from any public sewer system owned and maintained by a municipality, provided such sewer system was in operation and was discharging sewage into any State waters at the time of the passage of the Act. A copy of the law has been sent to every municipality.

The exception noted, however, does not permit the discharge of sewage from a sewer which shall be extended subsequent to the passage of the Act. Therefore, it is understood that so long as a municipal sewer system in use before April 22nd, 1905, be not extended, the law is not applicable and the sewage therefrom may continue to defile the public water supply. What constitutes an extension has been the subject of considerable contention by local officials. A sewer system, must in the course of events, be extended. Department officers and agents have been instructed that evidently the intent of the law is to bring, as soon as possible, all municipal sewer systems under State regulation and control to the end that the purity of the waters of the State for the protection of the public shall be accomplished.

Unapproved sewer extensions to an existing sewer outlet whereby the volume of filth discharged into a stream was quadrupled would defeat the object of the law and be contrary to the letter thereof. The Department believes that the principle involved should control and not the length of the sewer extension.

The law further provides that upon application duly made to the Commissioner of Health by public authorities having by law, charge of a sewer system of any municipality, the Governor, Attorney General and the Commissioner of Health shall consider the case and whenever it is their unanimous opinion that the general interests of the public health would be subserved thereby, the Commissioner of Health may issue a permit for the discharge of sewage from such public sewer system into any of the waters of the State and may stipulate in the permit the conditions on which such discharge may be permitted. The permit before being operative must be recorded in the office of the Recorder of Deeds for the county wherein the outlet for the sewer system is located.

The student of the permits may note that one feature is based on the proposition that it is not practicable to treat large volumes of mingled sewage and storm water, owing to the prohibitive cost. Usually it is cheaper and better

to build separate sewers for sanitary household drainage and to provide other channels for the removal of rain water.

Also that another feature is based on the proposition that efficiency and economy in preserving the purity of streams for the public protection dictate that sewers shall be built to conform to a comprehensive plan. Municipalities are learning that patch work methods are bound to cause trouble, expensive alterations and repairs, and that those towns which have employed competent consulting engineers to lay out comprehensive systems and have thereafter conformed to the plan in construction, have usually found such a course to be profitable.

Temporary permission to discharge sewage, untreated, into a stream has been granted in thirty-six instances. Three formal rejections of sewer plans have been issued. Six municipalities and one private corporation owning a public sewerage system have been required to prepare sewage disposal plans at once. Five sewage treatment works have been proposed for immediate construction and the plans thereof approved.

The sewage disposal works approved were for the following places: Wayne, Montgomery county; Dermady Sanatorium, near Morton; Pennsylvania Glue Works, Springdale; West Chester; State Institution, near Spring City.

The seven places where plans for sewage treatment works were called for at once are as follows: Warren, Osborne, York, Carrick, Ligonier, Susquehanna Depot, Sunbury, East End Sewer Company.

The rejected sewer plans were for the following three places: West Middlesex, Lewisburg, Hallstead.

Of the thirty-six permits to temporarily discharge sewage into the waters of the State, seven stipulated the erection of sewage disposal works whenever called for by the Commissioner of Health, nine granted a temporary right of one year's duration, twelve of two years' duration and eight of three years' duration.

Wellsboro, Sharon Hill, Selins Grove, Lower Merion and the Aspinwall-Delafield Company must, on request, erect sewage disposal works. Blakely's right to discharge sewage into the river is contingent upon the submission of a comprehensive sewerage plan within two years. Mt. Carmel's permit is contingent on the immediate preparation of plans for disposal works, whose erection may be held in abeyance.

The nine permits which cease at the expiration of one year relate to New Castle (two cases), Northumberland, Selins Grove, Lancaster, Youngsville, Sunbury (Third Ward Sewer Company), Sunbury (Susquehanna Sewer Company) and Harrisburg.

The twelve permits which cease at the expiration of two years relate to Bloomsburg, Oil City, Titusville, Milton, Emporium, Zelienople, Renovo, Lansford and Emsworth. Also Edgeworth and Meadville, whose permits are conditioned that comprehensive sewerage and sewage disposal plans shall be submitted within a year, and also Stoystown, which must submit such plans whenever requested by the Commissioner of Health.

The eight permits which cease at the expiration of three years relate to East Brady, Sayre and Kingston. Also to Easton, Hollidaysburg, South Bethlehem and Gaysport, for which plans for sewage disposal works must be submitted within one year. Greenville must file acceptable plans for sewage works within six months. Construction thereof may be held in abeyance.

A private corporation, duly chartered by the State and to whom local authorities have granted a franchise for the construction, operation and maintenance of a public sewer system, is considered to be classed with the municipal corporation to the extent that plans must be filed and extensions approved. All other private corporations and companies and individuals that at the time of the passage of the Act, were discharging sewage into any of the waters of the State, may continue such discharge unless otherwise ordered. In a borough the remedy for these sources of pollution may be connection with a public sewerage system. All of the above matters more fully appear in the various permits arranged in alphabetical order, in Appendix "B."

Special Work.

Of the various petty petitions and complaints relative to stream pollution, common nuisances, etc., previously mentioned under petitions and complaints, 67 of them were referred to engineers for investigation and report. Twenty-five of the cases related to water supply, 20 to stream pollution, 12 to sewer extensions, 4 to stagnant ponds, 3 to rendering establishments and 3 were of a miscellaneous character.

The results of these references were as follows:

Respecting water supply, in 3 cases, viz: At Bristol, Allegheny City Home and Allegheny County Workhouse, plans for sewage disposal works have been started; in 8 cases permanent improvements to sewer systems have been taken under consideration; in 9 cases, as in the case of the epidemics at Warren, or at Norristown where the water supply was impregnated with an oily waste whose source was discovered and the trouble remedied forthwith, the causes of complaint were of a temporary character; and in 5 cases the remedy has not been applied.

Respecting the stream pollutions, in 3 cases sewage disposal works have been started, viz: Washington, Wayne and Springdale, and in 2 cases at Devon disposal works are pending; in 5 cases improvements to sewer systems are under consideration, and in 9 instances various solutions of the problem are pending. In one case at Elizabethtown, an individual pollution was abated.

Respecting the sewerage systems it should be understood that this work is entirely separate and apart from the work of investigating and reporting on applications made under the Act of 182 of 1905, respecting new installations or extensions of existing sewer systems. In each of the cases made the subject of a petty petition or complaint, it was found that unsanitary conditions existed and the remedies called for improvements of the sewer system involving considerable expenditures of money, and by advice of the Commissioner of Health plans are now being taken under advisement by the local authorities.

With respect to stagnant pools, citizens of the State have a right to petition and in the exercise of this right, it is expected that subjects not properly within the immediate jurisdiction of the Department of Health may be brought forward. Complaints relative to stagnant pools have been made the subject of cursory examination and if located within a borough, the matter has been referred to the local authorities.

IV. FIELD INSPECTION.

There are three distinct kinds of work performed by the field officers. The first is detail work of stream preservation and is on the upland water sheds sparsely populated and of small area where inspection and patrol can easily prevent the waters of the State from being polluted except, possibly, accidentally. The second is the less particular work on large water sheds whereon may be located villages, towns and cities, the drainage of which goes into a stream subsequently used as a source of a public water supply. The refinements in sanitation readily accepted as practicable for the upland water sheds would be impracticable if enforced on these lower water sheds. In the latter instance two safeguards are necessary, viz.: the diminution of sewage pollution as far as practicable and second, the filtration of the water supply.

The third kind of work of the field officers relates to various insanitary conditions with respect to disposal of household wastes and causes of disease and mortality within or without villages, boroughs and cities more fully mentioned in the heading, "General Sanitation."

The improvement of water sheds of considerable size whose yield is wholly or materially drawn upon for public domestic consumption, has demanded and received attention in 20 instances. Also a sanitary survey has been made along the Schuylkill River and its branches above the city of Philadelphia line in Montgomery, Chester and Berks counties, and along Cobbs Creek and tributaries of the Delaware River in Chester and Delaware counties and also along the Shenango River above New Castle. This work was done to ascertain whether sewage was being discharged either directly or indirectly into any natural water course leading to a public water supply. Conditions of all cesspools, privies and outhouses, barnyards, manure piles and of sources of individual drinking supply such as springs and wells, were examined and corrected or improvements ordered wherever necessary for the prevention of disease and for the protection of public health.

As previously stated, investigations of nuisances detrimental to health or the cause of disease at places not on water shed as above described has constituted a separate division of field inspection.

Improvement of Water Sheds.

There were inspected up to the end of 1906, properties totalling 14,298, located on 20 different water sheds and the three rivers above mentioned. All of these properties were left in a satisfactory condition at the close of the year excepting a few mentioned further on.

The water sheds in the 13 following cases were the subject of sanitary survey on petition or complaint: Johnstown, Greenville, Indiana, Windber, Punxsutawney, Cumru township, Du Bois, East Mauch Chunk, Smethport, Wyomissing, Middletown and Latrobe. The first was inspected by Mr. Edwards, the second by Mr. Clarke, the next 9 by Mr. Ely, and the Latrobe water shed by Mr. Considine.

The total properties inspected on these 13 water sheds were 2,164 and at the end of the year all were in a satisfactory condition but 22.

In one instance only was a water shed investigated upon Department initiative. It was at West Pittsburg and Mr. Clark made the inspection. Sixty-seven properties were investigated and at the close of the year all of them were left in a satisfactory condition.

Seven sanitary surveys were made of water sheds in connection with epidemics, more fully explained elsewhere in this report. They were at Nanticoke, Johnstown, Berwick, Johnsonburg, Palmerton, Warren and Scranton. Of 5,385 inspections made on these 7 water sheds all were left in a satisfactory

the town system of street pipes, but as previously stated, this was absolutely severed on said date. The upper works of the said Car and Foundry Company are on the town system and, therefore, after October 19th, could obtain mountain water only.

The supply to West Berwick and also to Nescopeck is taken off the town distributing pipes so that whatever water is supplied generally throughout Berwick is also supplied to these other two places and also to North Berwick settlement. For all purposes, the consumption averages 3,000,000 gallons daily, of which about one-half is for manufacturing purposes, and largely used at the lower plant. The water company supplies the town exclusively and the shops with mountain water as long as it lasts. This, of course, saves pumping. The next arrangement of operation is to pump the water supplied to the lower industrial plant, keeping the town and the upper plant supplied exclusively with mountain water. Finally when the mountain supply becomes insufficient for town purposes, recourse is then had to the river source to make up the deficiency.

There is a second pumping engine in the station, capacity 1.5 million gallons. It is held in reserve for fire protection.

Thus it is seen that there is a domestic system and an industrial system of water works in the district, they being interchangeable. It is also noted that ordinarily the river water is supplied wholly to the lower industrial plant.

Typhoid Fever.

During August, September and October, 1905, while a little water from the river entered the domestic system, almost all of it went to the lower shops. Typhoid fever broke out among the men who worked here and it did not disappear until pure water had been furnished at the works, and the epidemic had assumed proportions great enough to scare the employes into the observance of rules against drinking river water. The following table shows the proportions of shop employes contracting the disease to the total cases in the water district during the rise and decline of the epidemic:

Dates Inclusive.	Total cases.	No. employed at lower works.
Sept. 1 to 15th,	34	20
Sept. 15th to 30th,	10	9
Oct. 1 to 15th,	41	30
Oct. 15th to 31st,	7	4
Total,	<u>92</u>	<u>63</u>

The other 29 cases out of the total of 92 included 11 women, 6 boys, 2 girls and 10 men of various avocations in the town or surrounding country.

The distribution of the cases with respect to places of residence appears to have had no significance. Had the infection been in the domestic supply, men, women and children everywhere in the district should have been poisoned, which was not the case. The outbreak was almost exclusively at the lower works. The upper plant was exempted. Geographically the cases were distributed as follows:

Berwick,	27 cases.
West Berwick,	46 cases.
Nescopeck,	5 cases.
	<u>78 cases in water district.</u>
	14 cases outside water district.
Total,	<u>92</u>

Of the 27 cases in Berwick, 17 worked at the lower shops; 33 out of the 46 cases in West Berwick, all of the Nescopeck cases, and 8 out of the 14 cases occurring in the country district were of men employed at the lower works.

Extra Precautions.

Warning signs had before Oct. 23 been posted all about the shops at the lower works.

The company had erected numerous ice coolers and kept them supplied with spring water. These were placed conveniently about the plant. The men desisted in drinking the river water only after enough of their number had been stricken with typhoid fever to produce a general scare.

The general use of earth privy vaults and cesspools in the water district directed the efforts of the local health board to the disinfection of vault con-

tents. Lime was liberally supplied for this purpose. The local authorities were not thoroughly awake to the responsibility resting upon them and welcomed the assistance of the Commissioner of Health and his officers, and to the best of their ability executed orders. Undoubtedly this prevented secondary infection and early stopped the spread of the disease.

The water company on Oct. 23 was at work putting in blow-offs at low points in the domestic water pipe system to make possible the complete drainage of the pipes. This drainage was later effected. However, before this, hydrants and house faucets had been used to flush the mains and service pipes.

An examination of occupied estates on the water sheds with a view to prevent contamination of the streams was made by Dr. Fox. About one-half mile above No. 3 reservoir there are 3 residences each occupied by a family by the name of Varner. One of them is Stephen Varner, the patrolman. The slop water from his house was being thrown out of the back door onto the surface of the ground on the hillside 50 feet from the run.

Alexander Varner maintained a nuisance at his barnyard and pig pen. The privy was a direct pollution. These menaces were ordered abated within 5 days. Thus the patrolman was given a lesson in the character of service demanded.

Typhoid Fever on Watershed.

A year later, on Oct. 1st, 1906, there was a case of typhoid fever at Theodore Cope's residence on the east branch of Glen Brook, one mile above the reservoir. The patient was Master Charles, 14 years old. The attending physician did not report this case. However, the water company's patrolman was informed and the company gave prompt attention to the matter. The old privy, a surface closet only, located in a dangerous position on the hillside, 125 feet from the brook, was torn down, contents removed and buried, and a new vault dug.

Lesson.

The Commissioner of Health had a sufficient part of the information as to sources of water supply in Berwick and vicinity and whether any sewage was being discharged into the water, necessary to enable him and the officers under his control to deal promptly with health conditions in that community, when the epidemic developed. Thus is emphasized the value to the people of the State of the law making it compulsory for public and private corporations to record in the office of the Commissioner of Health the sources from which the water supply of every community in the State is taken and a like record of any sewer system discharging into the waters of the State.

The hearty and intelligent co-operation of the local authorities made possible splendid results which otherwise would have been impossible of accomplishment. Too high praise cannot be bestowed upon these men and the public spirited citizens of the community.

Through prompt action all along the line a sweeping epidemic was avoided. As it was, 92 cases and 7 deaths were recorded.

In a sense every dwelling on the mountain watersheds is a menace.

It is easily possible by efficient patrol and the maintenance of sanitary conditions, to keep the streams pure and wholesome for domestic uses. The responsibility is divided. It rests, first, on the individual householder; second, on the water company, and third, on the State. At present it is not generally realized by the rural population that negligence in sewage disposal is criminal and may result in great loss of human life.

JOHNSONBURG.

By direction of the Commissioner of Health, the Chief Medical Inspector and the Chief Engineer of the Department made an examination in the borough of Johnsonburg, Elk county, on January 22nd, 1906, to ascertain the cause of continued outbreaks of typhoid fever there and to advise with the local authorities as to remedies.

General Conditions.

The borough of Johnsonburg, Elk county, is a municipality of about 4,200 people, located in the valley of the Clarion river, at the forks of the eastern and western branches thereof, about seven miles above Ridgway, the county seat.

It is purely a manufacturing community, is supplied with public water works and sewerage, and good railroad facilities. In 1900 the population was 3,895, in 1890, 1,280.

The main line of the Pennsylvania Railroad from Philadelphia to Erie, a branch of this line leading to Laridde, and the Rochester and Pittsburg branch of the Erie Railroad pass through Johnsonburg. They follow the valley of the river along which are located the manufactories which are principally pulp and paper, the tanning of hides and chemical works. The New York and Pennsylvania Paper Company is the dominant concern. In the operations of tanning,

Water Works.

The various shops are furnished with a double system of piping. One for drinking and the other for industrial purposes. The drinking water is pumped from an artesian well on the premises. There are faucets on the pipes at about every 200 foot intervals in the shops. The manufacturing supply comes from Pohopoco creek. The men prefer the creek water. It is handier, in fact at the front of every furnace.

Pohopoco creek enters the Lehigh River at Parryville borough, 3 miles above the zinc plant. Water is conveyed in a 30-inch gravity main, 17,548 feet long, laid in the bed or along the banks of the river and at numerous places exposed, terminating at the pumping or central power plant of the Zinc Company. The water supply system is the property of the Palmer Water Company, a subsidiary corporation of the Zinc Company. Here, at the pump house are installed 6 pumping engines by means of which the water is delivered to all parts of the Zinc plant and also to the Water Company's stand pipe, 25 feet in diameter and 85 feet high, located in Palmerton village, from whence the water is distributed about town. The total daily consumption for all purposes is between 5 and 7 million gallons. In the village it averages 80,000 gallons.

There is an emergency intake from the river to the pumping station which is maintained for use in case of accident to the gravity supply main.

The intake dam across Pohopoco Creek is about 1,200 feet up stream from the river. This dam forms a reservoir, long and narrow, and about 18 acres in extent, which holds 36 million gallons. The maximum depth, when full, is 10 feet. The average depth is 6 feet. On the bottom is mud from 1 to 2 feet thick. The borough of Parryville extends along the lower half of this pond on the north bank. Two small runs flowing through the borough and receiving street drainage and slop and wash water empty into the reservoir. There are a dozen or more privies and a number of barns along the edge of the bank which are sources of direct or indirect pollution. Laborers residing in the neighborhood are in the habit of washing clothes in the water and of throwing slops therein. To avoid these pollutions, the water is taken from the upper part of the reservoir at a point about 1,700 feet above the gate house. This structure is situated on the bank near the breast of the dam. Formerly the 30-inch supply main terminated here. Now it is laid under the water and terminates at the above mentioned point 1,700 feet up stream.

Source of Infection.

The source of infection was not found. Suspicion was first directed to the water supply. Following the outbreak among shop workers the disease appeared among women and children in Palmerton along Lehigh avenue and on the flats. The Chief Medical Inspector failed to discover a polluted milk supply, but he did discover a large hole in the pipe lying on the bottom of the Parryville reservoir. This opening was at a point 125 feet above the dam and near where the sewage and drainage from the privies, barns, street gutters and the runs enter the reservoir. Tests of the water showed it to be polluted. Warning notices were posted in the town and at the works. The customary admonitions to boil all water used for domestic purposes were given. No way was found by which other and unpolluted water could be substituted until August.

Forty-nine cases occurred in dwellings located on Lehigh street in Palmerton, and 19 cases occurred on the flats. In one block on Lehigh avenue, between 5th and 6th streets were 5 double houses supplied with well water, also four single residences. There were privies in the back yard 50 feet from the wells. These wells were built of loose stone about 15 feet deep and are subject to ground water flow, surface and underground pollution. Typhoid fever cases were particularly numerous in this block. Some of the privies were in overflowing condition, and it was possible for infection to have been communicated to the wells.

Another source of possible secondary infection was the unfinished sewage disposal plant and the open sewers in close proximity to the densely populated foreign boarding house district. There were also various nuisances throughout the town. The houses of workmen were not generally connected to the sewer system and there were overflowing privy vaults at dwellings in which typhoid fever existed. Warm weather favored the spread of infection through the agency of flies.

The cases by months in so far as there is reasonable certainty as to date of onset, were as follows:

April 12, during last 6 days, 9 cases.
May 17, 16th to 24th inclusive, 10 cases.
June 13, 22 to 29th inclusive, 9 cases.
July 9, evenly distributed first 20 days.
August 17, first half month, 11 cases.
September 23, after the 10th, 19 cases.

Permanent Remedies.

The Commissioner of Health suggested as permanent remedies, patrol of the water shed, extension to the sewer system, improvements to the disposal works, and the filtration of the water supply or the securing of a new and pure source.

Immediately upon the discovery of the break in the intake pipe, the company began the drilling of a new well at its plant for the purpose of securing, if possible, a temporary supply of pure water.

Although vigorous efforts were put forth by the company to temporarily repair the break and exclude polluted reservoir water, there were numerous small leaks along the pipe which were not entirely closed. So polluted Parryville water was furnished to Palmerton until August 18th. Since then, the new ground water has been the only source of supply to the village. The water, however, is extremely hard and unsatisfactory on this account.

The water for manufacturing purposes, comes as formerly, from Parryville.

The emergency extension to the village sewers were ordered pending the preparation of comprehensive plans for improved sewerage and sewage disposal works and the submission of them to the Commissioner of Health for approval in compliance with law.

On June 8th the Commissioner of Health appointed H. N. Blunt State Inspector, and clothed him with authority to enter and investigate the sanitary condition of all properties on the watershed and in the district. Investigations were inaugurated at once.

Pohopoco creek rises in Chestnut Hill township, Monroe county. In this township and Polk township, said county, the stream is called Big creek. It flows in a general south-westerly direction about 13 miles to its confluence with Wild creek, in Carbon county. Wild creek rises to the north in Penn Forest township and flows in a winding course, generally southerly $7\frac{1}{2}$ miles to Big creek. From this junction, the stream is called Pohopoco creek. The course is south-west $7\frac{1}{2}$ miles to the Lehigh river.

The total area of the watershed is about 100 square miles. It is wholly rural and contains little forest. The topography is rugged. About one-half of the water shed is in Monroe county and about two-thirds is of the Catskill red sandstone formation. In the valley of the Pohopoco and Big creeks the formation is flag-stone and Genesee slate.

The tributaries are swift running brooks down from the mountain sides, but the main streams ordinarily have low velocities. Several small villages are located along the valley. Within the area in Carbon county there are 200 habitations, and in Monroe county, 220 habitations along the main creek and branches.

Systematic patrol and forms of daily reports were established in June, and every dwelling has been visited at least once in two months since. One thousand notices, warning against all contamination of any stream, were posted at conspicuous points over the water shed by order of the Commissioner of Health.

Of the 420 dwellings, 35 are unoccupied. 245 properties were found to be in a satisfactory sanitary condition. 140 were found unsatisfactory.

Ninety-five abatements of menaces have been effected by verbal notification. Thirty abatements have been effected after legal notices were served on the estate. In three instances, arrests had to be made and the offenders taken before the court before compliance with the orders were had. Fifteen unabated cases are pending.

November 1st the Commissioner of Health appointed Mr. Howard Seabold Deputy Inspector for permanent patrol duty, under pay by the water company. At the close of the year, 1,540 inspections had been made.

Conclusions.

An epidemic may occur in Palmerton again. The danger is minimized, but Parryville reservoir water is not pure and the men should not drink it; however, they continue to do so. Infection conveyed by this means may reach the wells in Palmerton ultimately. The pure drinking water at the works should be handy. Then the privies and wells should be abandoned in town and sewer connections and public water substituted therefor. Sanitary water closets, sewers and a sewage treatment plant should be installed at the zinc works.

SCRANTON.

About the middle of December, 1906, an epidemic of typhoid fever broke out in the city of Scranton and rapidly spread. The Commissioner of Health was requested to help stamp out the disease. He assigned Dr. A. B. Moulton, Assistant Chief Medical Inspector, and Mr. F. W. Witherell, Assistant Engineer, to this duty. Judging from present information the infection is largely confined to the district supplied by Elmhurst reservoir water. This source has been shut off, the water pipe system thoroughly flushed and drained, and sanitary regulations put in force in the city to prevent secondary infection. If the

Upon recommendations to the borough council, said recommendations being made by the Warren Board of Health, the water company was requested to build a 10-foot tight board fence around the distributing reservoir, and to provide for the admission of the water to the reservoir at the end farthest from the outlet, to remove the sediment from Morrison Run reservoir and to construct a dyke there to prevent stagnant water from adjacent swales from entering the public supply. These requests were promptly complied with by the water company, who notified the State Department of its willingness to comply with any requirements which the Commissioner of Health might make.

On November 8th, 1906, a special committee of the borough council (appointed to investigate the subject of certain charges relative to the quality of the water supply, made by Dr. Ball, the President of the local Board of Health), made a formal request to the Health Commissioner, in conjunction with the manager of the water company, that an inspection of the sources of supply be made by the State.

December Epidemic.

On Friday, December 7th, an epidemic of gastro-interitis began and continued with severity until Wednesday, December 12th, although a few cases were noted for over three weeks thereafter.

Until the day of December 7th, several doctors were called in to the homes where there had suddenly occurred cases of gastro-interitis, most of them resembling a mild ptomaine or arsenical poisoning. That night, and the day following, there were probably 600 people in the borough taken down with this trouble, nearly all of whom employed doctors. On Sunday, there were about 400 new cases receiving medical attention. A few more came down with the same symptoms on Monday, and perhaps a dozen more were afflicted on Tuesday and Wednesday. Altogether, the doctors in the borough looked after more than 1,000 cases of severe gastro-interitis, between Friday noon and Tuesday noon, and there were probably at least 800 cases among the poorer people who did not consult doctors. Practically all of the 1,800 people had similar attacks, and in the greater number of cases the attacks were severe.

The prevailing symptoms were sudden, severe cramps in the stomach followed by vomiting, diarrhea and great weakness. A few cases only had high fever followed by syncope. The excreta were watery and brownish in color. The greater part of the patients felt badly for about three to six hours, and then recovered. However, quite a number of them were seriously ill. In most cases the recovery was reasonably rapid and a greater part of the number afflicted almost completely recovered within thirty-six hours.

The disease was not prevalent in other places within a radius of sixty miles.

A review of the evidence makes prominent three facts: First, the cases occurred in families where public water was used exclusively, or among those living in the outskirts who drank public water when in town. Second, that of the 1,000 individuals receiving medical attendance, about 960 had not boiled the water, and among those where the water was boiled, raw water was still used for brushing the teeth. Third, the cases were principally located in the old part of the town, which is supplied by ground water. However, prior to, during and after the epidemic, the pumps were shut down night times, so the ground supply was thus cut off and Morrison Run water furnished to the entire borough. These shut-downs were between midnight and 6 o'clock in the morning.

Suspicion was directed therefore, to either the ground supply or that from Morrison Run (the distributing reservoir not having been used), unless the medium of transmission was by means of food, milk or the ice supply.

With two exceptions, there was no case of the disease in the families of the 12 milkmen who supplied the town. The case in Mark Saylor's household occurred two days after the onslaught of the epidemic in Warren, and the case in John Yeagle's household occurred four days thereafter. Both patients had been to town and drank public water. The disease was well distributed throughout the town among the 12 milk dealers' customers.

Relative to the ice supply, it was estimated that about one-third of the patients only had used any ice whatever. Furthermore, six ponds furnish the supply, only one of which was reported as being subject to possible sewage pollution. The general distribution of the cases in the town points to some other cause than the ice supply.

Respecting the food supply, the greater part of the lettuce and celery used was obtained from remote and widely separated markets outside of Pennsylvania. The same is true with respect to meats. As far as ascertainable, about 50 people in town only had purchased oysters immediately prior to the outbreak.

In view of the general distribution, suddenness of the attacks and virulence of the disease, it was concluded that the public water supply was probably the medium of transmission.

The public was notified to boil all water and daily notifications to the effect were published in the local newspaper from Saturday, December 8th throughout the month. New cases which occurred during this time were principally in families where the water was not boiled.

The water company and the Warren Board of Health, immediately upon the outbreak, collected samples of water for testing, to determine, if possible, the cause of the infection. Those collected by the Board of Health, were analyzed in the laboratory of the State Department at Philadelphia. The following tests were made by the water company of water collected on November 12th:

Place.	Water Bacteria per C.C.
Morrison Run reservoir,	12
Spring Run above reservoir,	13
Morrison Run above reservoir,	120
Hose House tap,	35
Distributing reservoir,	40
Town Hall tap,	10

None of the samples of water tested by the State Department indicated sewage pollution subsequent to December 22nd. Prior to that time colon were found both in Morrison Run and in the ground water. They were always present in the river water.

The water in the distributing reservoir was tested once on December 10th. Three samples were taken. No colon were present. Water Bacteria did not exceed 280 per C.C. However, this water was not used.

On November 12th, the Run was low in bacterial contents. November 25th the reservoir was drained, cleaned and washed out. On the night of the 26th the Run water was turned on to the town for the first time in six months. Sewage pollution of this reservoir on account of its small capacity, would pass away quickly during freshet flows. On December 6th the day before the epidemic, there was a rainfall of 1.3 inches. The ground was frozen and the run-off was, therefore, effectual as a scour. Sewage pollution anywhere on the water-shed would have been washed away and passed through the reservoir, so that while tests prior and subsequent to the epidemic did not show sewage contamination, it might have been present. There was a heavy rain on December 13th of 0.64 inches and one again on the 31st of 0.9 inches, between these dates colon were found in the water indicating an existence on the water-shed of some source of pollution. Besides the 16 persons permanently residing there, there are kept approximately 15 sheep, 6 horses and 50 head of cattle.

The privies at the dwellings were in reasonably good condition. The principal danger of pathogenic pollution is from the attendance at the oil wells. No sickness was found on the water-shed.

Faeces of town patients were sent to the Department laboratories in compliance with instructions given by the Commissioner of Health. Dr. Herbert Fox replied as follows:

"The specimen of faeces received from Dr. Ball and examined for sporogenes, but this was not found. The prevailing organism is a gramm negative rod, apparently a bacterium, which has some characteristics in common with bacterium aerogenes, and with the hog cholera. So far as I have gone, I am not able to say what this is, nor am I able to find reference to bacteria of this sort in droppings of cattle. I cannot at this time give the bacteria a name. I have injected it into guinea pigs, which still live and enjoy life. There are no local evidences of infection within 24 hours, which have just elapsed."

Later Dr. Fox wrote to Dr. Ball as follows:

"The predominating organism was practically impossible to determine, since about an equal number of all sorts of colonies were present. It was either a water organism in the shape of a clostridium, or an organism belonging to the same type as the bacterium aerogenes. There was no great predominance of bacillus coli."

"In the faeces which you sent, the predominating organism was B. Acid. Lactici. The B. Enteriditis Sporogenes was found in small number growing slowly, and only isolated when the bulk of 10 c.c. of the fluid faeces was used. There were no organisms suggestive of typhoid or cholera either in the water or faeces."

Therefore, the conclusion reached was that the infection was due, not to a known specific organism, but rather to a general poisoning resulting from a sudden infection of the water supply, possibly by sewage. It appears that this pollution may have come from the Morrison Run reservoir, and in this connection it should be noted that while Morrison Run water had been supplied to the town from November 26th on, probably 30 per cent. of the inhabitants being furnished with this water on December 6th, when the heavy rain occurred, and for several days prior to this time, the pumps were shut down between midnight and 6 A. M., during which all of the people were furnished with Morrison Run water, so that if the infection came from this source, it could have reached all parts of the town. Corroborating this view is the fact

The pollution of such a ground water supply would be obviated were proper attention bestowed upon the proper disposal of sewage upon the surface of the earth.

No amount of practicable, sanitary inspection of even a mountainous, sparsely polluted water-shed can afford absolute protection, since the straggling inhabitants thereon or others may be careless in habit and infect a stream; especially where the area is a quick spilling one and the rains thoroughly wash the surface.

Warren gives a forcible illustration of the derangement of the human system which may be produced by concentrated sewage in drinking water.

VI. REFERENCES TO SPECIAL COUNSEL.

In the prosecution of the work of the removal of sources of sewage pollution along the Schuylkill River and its tributaries above the boundary line of the city of Philadelphia, and in effecting abatement of nuisance, on complaint or petition, in the southeastern part of Pennsylvania, 227 cases were referred by the Commissioner of Health to Innes & Williams, Attorneys-at-Law, of Philadelphia, for prosecution.

In every one of the 227 cases, after inspection of the property by a field officer, a written order of abatement issued by the Commissioner of Health had been sent to or served on the owner or occupant of the property upon which the nuisance or menace existed, and the order had been unheeded.

Mr. Louis J. Palmer, representing the above firm, personally attended to these cases, and all have been abated with 3 exceptions, namely: That of Edward Emmers, of Royersford, Montgomery county, who maintains nine water closets in a factory located in the borough, and the sewage therefrom is discharged into the Schuylkill river; and two others awaiting trial.

Six prosecutions were brought. Three are pending and three were settled satisfactorily.

Under the personal instruction of the attorney, the field inspector on re-inspection was able to secure abatements in 138 cases. In 33 instances abatements were effected only after inspection by the attorney and interview with the owner. In 42 cases abatements were brought about by inspection and subsequent correspondence between the attorney and the property owner.

In 3 cases the evidence of pollution was not sufficient to warrant proceedings and the matter was dropped, no nuisance existing at the time.

In every instance the obtaining of evidence was carried out systematically under the personal supervision and direction of the attorney. The inspector was assigned to the work, specific instructions were given and reports were submitted to the lawyer, whereupon information for the purpose of issuing warrants in each case was prepared, but withheld pending negotiations for settlement out of court. The distribution of the cases were as follows:

Montgomery county,	172
Berks county,	12
Delaware county,	20
Chester county,	7
Carbon county,	15
Bucks county,	1
	<hr/>
	227

The field work in Montgomery county was performed by Inspectors Downes and Andrews. They also did it in Berks county. Inspector Andrews reported all the cases in Delaware and Chester counties, Inspector H. N. Blunt for Carbon county and County Medical Inspector James E. Groff for Bucks county.

The prosecutions were brought in Montgomery, Delaware and Carbon counties against the following parties as follows:

Montgomery county, Edward Emmers, pending.
 Montgomery county, Samuel Lentz, settled.
 Delaware county, Phineas Foley, pending.
 Carbon county, W. H. Reber, settled.
 Carbon county, Samuel Fisher, settled.
 Carbon county, Tilghman Dreisbach, pending.

In the Lentz case the charge was pollution of a tributary of Schuylkill river by overflow from cesspools on bank of stream. Warrant was issued on information after inspection and correspondence. Defendant was bound over to the court by the magistrate with the understanding that the case would not be returned if the nuisance were abated forthwith, and all costs paid. The nuisances were abated and the case discharged.

In the Foley case, the charge was pollution of Cobbs creek from sewage from pig pens. A warrant was issued on information after inspection and interview. The magistrate bound the defendant over to court. Case not yet tried.

In the Reber case, the charge was pollution of a tributary of Lehigh river by sewage from hotel. The warrant was issued on information only after inspection and interview by the attorney, and the magistrate bound defendant over to court with the understanding that the case could be settled by abatement of nuisance and payment of costs; abatement and costs paid.

In like manner was the case of Fisher disposed of. The charge was pollution of tributary of Lehigh River by overflow from loosely constructed cess-pool.

In the case of Dreisbach, the charge was pollution of tributary of Lehigh River by drainage of barn-yard. Warrant issued after inspection and interview by attorney. Magistrate bound defendant over to courts. Case pending.

In the Emmers case the charge was pollution of the Schuylkill River by sewage from water closets. The warrant was issued on information only after inspection and interview by the attorney. The defendant was tried in Quarter Sessions Court and convicted. The judgment was affirmed in Superior Court in an opinion handed down by Judge Aaron S. Swartz refusing a new trial. Attorney General Hampton L. Carson argued the case.

The eminent opinion of his Honor is as follows:

"In the Court of Quarter Sessions of the Peace in and for the county of Montgomery.

Commonwealth	}	Violating Sewage Act of April 23rd, 1905.
vs.		
Edward Emmers.		

"Motion for a new trial and motion in arrest of judgment."

"BY THE COURT:—

"At the argument, counsel for the defendant abandoned all objections save those based upon the constitutionality of the Act of April 23rd, 1905, P. L. 260. The sufficiency of the indictment was not questioned. Even if the answers to the points submitted involving the sufficiency of the evidence were pressed, we could not sustain the objections and grant a new trial. We instructed the jury very distinctly that there could be no conviction unless the sewage from the defendant's factory found its way into the river Schuylkill. The notice to discontinue the discharge by order of the Commissioner of Health was proved and admitted by the defendant.

"The evidence that the defendant permitted the discharge of sewage into the river and that such sewage contained excrementitious discharge from human beings was fully established by the witnesses.

"The defendant employed over one hundred and fifty men and women in his factory. These employees used nine water closets all of which by means of soil pipes drained or emptied upon the banks of the river Schuylkill. The small pool into which they discharged is located about fifty feet from the edge of the river. A small stream of hot water from the boilers also discharged within a few inches of this pool. The flushes from the water closets and the hot water from the pipe running to the boilers made one or more distinct channels toward the river. This system of drainage was in use for more than ten years and yet at no time was there any accumulation of human excrement requiring its removal from the small pool. This fact as well as the positive evidence of witnesses who saw the matter flowing toward the river establishes conclusively that nine water closets in the factory discharged all their waste products into the river. A more flagrant case of river pollution cannot well be conceived.

"It is contended that the Act of 1905 is unconstitutional because it is special legislation, that it excepts persons and classes that are within the mischief sought to be remedied. The exception covers waters pumped or flowing from coal mines or tanneries and sewer systems maintained by municipalities and in operation at the time of the passage of the Act. Sewage is defined by the Act 'as any substance that contains any waste products or excrementitious or other discharges from the bodies of human beings or animals.'

"Coal mines do not contain sewage within the meaning of the term as defined by the Act. They were mentioned only to avoid any doubt as to the intention of the legislature. They were not within the mischief the legislature intended to reach by this Act, Commonwealth vs. Sellars, 130 Pa. 32.

"Whether tanneries produce waste products from the bodies of animals or whether such products ordinarily pass from the premises as sewage or whether the brine of the tan bark destroys any deleterious matter that may find its way into the vat, are all matters of fact upon which we have no evidence. In the absence of all evidence upon the subject we do not see how we can find as a fact that tanneries throw off sewage within the meaning of the term defined by the Act. We must assume that if they were within the mischief the legislature sought to remove they would not have been excepted.

"Does the fact that because municipal sewer systems in operation at the passage of the Act are excepted, make the act unconstitutional?

boggy land wash water from the Kettering house and barn readily finds its way.

Spring number three is the most copious one in the district. It is possible for it to be contaminated by drainage from two barns. One of these barns is within three hundred feet, but the other is about one-fourth of a mile distant.

The Water Company proposes to dig out these springs, wall them up and kept out all surface water and pollution. It is proposed to conduct the water from the springs to a storage reservoir to be located just above the said ice pond. It is to be built of masonry and to fifty feet long, thirty feet wide, and about ten feet deep.

An eight inch gravity supply main is to conduct the water from the reservoir to the village, following the line of the run past the said ice pond, and connecting with the pond for the purpose of drawing thereupon in times of emergency.

After a careful examination of all the conditions, it has been determined that the proposed source of supply will not be prejudicial to public health, provided the following things be done:

FIRST: That all surface and run water be excluded from the springs, and for this purpose each spring shall be dug out and walled up in masonry to a sufficient height and the adjacent land, where boggy, shall be efficiently drained.

SECOND: That the proposed storage reservoir be made tight on the bottom and sides and the walls thereof be carried up high enough to always exclude surface and run water.

THIRD: That all run and surface water shall be carried around the ice pond and discharged below it at all times.

FOURTH: That the Water Company having already agreed to supply the ice pond with spring water, shall not fail to do so at all times.

FIFTH: That the Water Company shall not use the ice pond water only in case of conflagration, and not then until all other sources of supply are exhausted.

SIXTH: That the spring upon the said David Meyer estate shall not be taken or used by the Water Company, until the small tenement house and buildings thereon are vacated, and that these buildings shall be removed on or before the first day of July, one thousand nine hundred and six.

SEVENTH: That facilities be provided whereby the system of distributing pipes in the village may be easily and completely drained whenever occasion may require it.

Permission to use the proposed additional source of supply is hereby granted under the above stipulations and provisions, and under the further provision and stipulation.

That the said Annville Water Company on or before the first day of December, one thousand nine hundred and five shall file with the Commissioner of Health, a complete plan of the entire water works system, present and proposed. This plan shall show the streets of the village, the location of the water pipes, their sizes, location of gates and hydrants, and the location and profile of the supply mains and any gates upon them, together with plans, sections and elevations of the storage reservoir, their gates and appurtenances, of the pumping station and the driven wells, a plan and section of the ice pond, and a topographical map of the water sheds of the two sources—the old and the new—said topographical map to be drawn to scale, giving elevations and locations of the springs and all buildings upon the water sheds, highways and runs.

Harrisburg, Pa., October 18th, 1905.

ANNVILLE, LEBANON COUNTY.

ANNVILLE WATER COMPANY.

The terms of the permit issued to the Annville Water Company and dated October eighteenth, nineteen hundred and five, were not wholly satisfactory to said company and consequently a second petition was filed asking for the following modifications of the first permit:

FIRST: That the said company shall not be required to make the bottom of the proposed storage reservoir tight.

SECOND: That the said company shall not be required to conduct the run and surface water around the ice pond and discharge the same below it.

THIRD: That the said company shall not be required to supply the said ice pond with spring water at any time, except as by its contract and agreement with the said David H. Meyer.

After a careful examination of these modifications and a review of all the conditions, it has been determined that the proposed source of supply will not be prejudicial to public health provided the following things be done:

FIRST: That all surface and run water be excluded from the springs, and for this purpose each spring shall be dug out and walled up in masonry to a sufficient height, and the adjacent land where boggy, shall be sufficiently

drained. The water from said springs shall be piped to the collecting and storage reservoir, and each such pipe leading from each individual spring shall be fitted with a gate permitting each said individual spring, or any or all of them to be shut off separately or collectively from the said storage reservoir.

SECOND: That the proposed storage reservoir be made tight on the bottom and sides and the walls thereof be carried up high enough to always exclude surface and run water, and that a drain shall be constructed so that the reservoir may be readily emptied and the waters therein wasted into the run; and a gate shall be placed on the supply main between the reservoir and the village so that the supply from the proposed source may be shut off when occasion may require it.

THIRD: That the present connection between the supply main and the ice pond shall be taken out, and that on no occasion shall the waters from said ice pond or any surface water be introduced into the Annville Water Supply system.

FOURTH: That the Water Supply Company shall not be required to supply the said ice pond with spring water at any time, except as required by the contract and agreement with the said David H. Meyer, the owner of the said ice pond.

FIFTH: That the spring upon the said David H. Meyer estate shall not be taken or used by the Water Company, until the small tenement house and the buildings thereon are vacated, and that these buildings shall be removed on or before the first day of July, one thousand nine hundred and six.

SIXTH: That facilities be provided whereby the system of distributing pipes in the village may be easily and completely drained whenever occasion may require it.

SEVENTH: That permission to use the proposed additional source of supply is hereby granted under the above stipulations and provisions, and under the further provision and stipulation:

That the said Annville Water Company on or before the first day of December, one thousand nine hundred and five shall file with the Commissioner of Health, a complete plan of the entire water works system, present and proposed. This plan shall show the streets of the village, the location of the water pipes, their sizes, location of gates and hydrants, and the location and profile of the supply mains and any gates upon them, together with plans, sections and elevations of the storage reservoir, their gates and appurtenances, of the pumping station and the driven wells, a plan and section of the ice pond, and a topographical map of the water sheds of the two sources—the old and the new—said topographical map to be drawn to scale, giving elevations and locations of the springs and all buildings upon the water sheds, highways and runs.

Harrisburg, Pa., November 9th, 1905.

ATHENS, BRADFORD COUNTY.

FAIRVIEW WATER COMPANY.

This application was made by the Fairview Water Company of Athens, Bradford County, Pennsylvania, and is for permission to construct water works and supply water to the public within the borough of Athens.

It appears that the Fairview Water Company was duly chartered on April twenty-eighth, one thousand nine hundred and three, to supply water to the public in the borough of Athens, Bradford County, Pennsylvania.

Athens is now well supplied with public water. There are about eleven miles of pipe of which six miles are three and four inches in diameter. The water is mechanically filtered after being taken from the Susquehanna River at a point in the borough of Sayre. The Sayre Water Company owning and operating the station and supplying the borough of Sayre also.

The Susquehanna and Chemung rivers meet at a point in Pennsylvania about five miles below the boundary line between New York and Pennsylvania. In this fork of land which is about four miles wide at the state line and about one mile wide half way to the confluence of the two rivers, are located the boroughs of Athens, Sayre and South Waverly. The Chemung River is the westerly boundary of the fork and near its mouth, which is about one mile below Athens, receives the drainage of two tributaries, namely, Murry Creek and Wolcott Creek. The latter is the southerly stream. A half mile or so below the Chemung is the southerly stream. A half mile or so below the Chemung river the Big Buck Creek empties into the Susquehanna river. All three of these small tributaries rise in the hills to the west and come down easterly through precipitous courses to the rivers. The proposed water works contemplate the interception of the upper waters of Wolcott Creek at a sufficient height to deliver the supply by gravity to Athens.

Wolcott Creek is the largest and the middle one of said tributaries. It rises in Ridgbury township, where the summits are about seven hundred feet higher

In the summer of nineteen hundred and five, after the Citizens Water Company's application was presented, a well was drilled on the bank about sixty-five feet from the river, and about five hundred feet north of the pumping station. In a test made for ascertaining the capacity, the well produced fifteen hundred gallons of water in an hour, without lowering the height of the water therein. The well is cased to below low water mark of the river and all surface water is shut off.

The river bed and the bank is composed of sand and gravel, so that the water reaching the well from the river must pass through a natural filter or strainer. It is now proposed to connect this well with the system of water works and to take from it and pump all water needed in addition to the springs already mentioned.

After a careful consideration of the application, it has been determined that the proposed source of supply, namely, the Allegheny River, the three springs upon land of the Rayburn Water Company and the Colwell, Crotzer, Linton and Mechling springs will not be prejudicial to the public health, and permission is hereby granted to the Citizens Water Company to use said sources of supply under the following provisions and conditions:

FIRST: That all water taken from the Allegheny River shall be filtered, and the plans thereof shall be submitted to the Commissioner of Health for approval before construction work is begun, or said water is used. This stipulation includes the said driven well above mentioned, plans of which have not yet been submitted; the filtration through the natural filter is considered sufficient for the present. The water from this well is not likely to be permanently good, and when actively used, if it should be found at any time unsuitable in the opinion of the Commissioner of Health, for drinking purposes, thereupon permission to use the well will be revoked.

SECOND: That all surface water shall be excluded from the springs, wells, and reservoirs used to store ground water, by means which shall be fully described and submitted together with plans thereof, to the Commissioner of Health who may amend them or require the adoption of still further protective measures.

THIRD: That a full description of means now taken to protect said ground waters, springs, wells and reservoirs from sewage contamination, together with maps of lands owned or leased by the said companies, and showing buildings, highways and sources of possible contamination on the areas from which the ground waters are derived and stored, shall be submitted to the Commissioner of Health who may amend them or require the adoption of still further protective measures.

FOURTH: That each pipe leading from each spring shall be fitted with a gate permitting each spring or any or all of them to be shut off, separately or collectively, from the storage reservoir into which the waters ordinarily deliver, or from the distributing pipe system, if such gates are not already provided, and a plan showing where these gates are placed shall be filed with the Commissioner of Health.

FIFTH: That ample facilities for draining all storage reservoirs and wells shall be provided, if this provision has not already been made. A description of these facilities shall be filed with the Commissioner of Health.

SIXTH: That facilities shall be provided whereby the system of distributing pipes in the water district may be easily and completely drained when occasion may require it.

SEVENTH: That if at any time the said water supply is found to be unsuitable in the opinion of the Commissioner of Health for the uses to which it is put, the said supply shall be discontinued.

EIGHTH: That on or before March sixth, nineteen hundred and six, the Citizens Water Company shall file with the Commissioner of Health all of the maps, plans and descriptions herein called for, excepting the water filter plant. And when the said filter plant is constructed, the plans thereof to be filed with the Commissioner of Health shall be accompanied by detail plans of the intake, pumping station layout, force main, and storage reservoir to be used in connection with the supply of the Allegheny river water.

NINTH: That this permit be granted under the express stipulation and further condition that the Citizens Water Company shall have first complied with all laws and ordinances regulating and controlling the business in which it purposes to engage as set forth in the application herein considered.

Harrisburg, Pa., January 13th, 1906.

MAUCH CHUNK TOWNSHIP, CARBON COUNTY.

Mauch Chunk Township Water Company.

This application was made by the Mauch Chunk Township Water Company of Lansford, Carbon County, and is for permission to construct water works for the supply of water to the public in the village of Nesquehoning, Mauch Chunk township, Carbon County.

It appears that Mauch Chunk township is in the central part of Carbon County, is about three miles wide and twelve miles long and extends westerly across the Lehigh River from the centre of the county to Schuylkill county. This elongated shape is partly due to the topography of the region. On the south the township is bounded by Mauch Chunk Mountain, and on the north—but west of the river—by the Nesquehoning Creek. Paralleling Mauch Chunk Mountain and distant about a mile northerly therefrom is Sharp Mountain, sometimes called Pisgah Mountain Ridge, down the intervening valley of which the Mauch Chunk Creek flows easterly to the Lehigh River.

In this mountainous township are four boroughs, and their combined populations, together with that of the township itself aggregates forty-one per cent. of the population of the county census of nineteen hundred. The borough of East Mauch Chunk, population thirty-four hundred and fifty-eight, is east of the Lehigh River. Opposite it, on the west bank of the river is the borough of Mauch Chunk population forty hundred and twenty-nine. Nine miles to the west, on the county line, are the Lansford and Summit Hill boroughs, populations forty-eight hundred and eighty-eight and twenty-nine hundred and eighty-six respectively. These two boroughs are in the Schuylkill river basin, being at the head waters of the tributary named Panther Creek. A portion of Summit Hill borough on the south drains into Mauch Chunk Creek valley, this being at the head waters of said valley. Mauch Chunk Creek joins the Lehigh River at Mauch Chunk borough and hence forms a part of the Delaware river basin system.

In the Nesquehoning Creek valley at the north line of the township, and about three miles from the Lehigh river is the village of Nesquehoning with a present population of about three thousand. At present there are no public systems of water works and sewerage here.

The boroughs of Mauch Chunk and East Mauch Chunk are furnished with a public water supply by the Mauch Chunk Water Company.

A legislative act to incorporate the Mauch Chunk Water Company was approved March sixth, eighteen hundred and forty-nine, under which said company was empowered to introduce water into the village of Mauch Chunk from such streams and springs as may be determined upon for the purpose of extinguishing fires, supplying water for domestic use and such other uses as the Company may permit.

Again on the first day of May, eighteen hundred and sixty-one, an act was approved to enable the Mauch Chunk Water Company to extend their works to the borough of East Mauch Chunk.

For said purposes the Water Company has appropriated all of the head waters of Rundle's Run, and the head waters of Mauch Chunk Creek.

Rundle's Run rises in the mountains to the east of East Mauch Chunk borough and flows westerly by the southerly part of the borough to the Lehigh River. The supply is derived from surface waters collected by dams and from flowing springs and artesian wells, and is delivered to the borough by gravity.

On Mauch Chunk Creek there is a small intake dam for the diversion of surface water to the supply main. Also at several points in the valley flowing wells and ground waters are appropriated and piped through distributing reservoirs which are elevated sufficiently to deliver the water by gravity to Mauch Chunk borough. These sources seem to be ample for the company's needs. A portion of Summit Hill's sewage may reach the creek above the location of the intake dam.

Summit Hill borough derives its public water supply from the Summit Hill Water Company. The water is drawn from the ground from a driven well sunk in sand stone in the valley of Mauch Chunk Creek at the foot of the mountain upon whose summit the borough is located. The water is pumped from this well to a reservoir in the town. The supply seems to be ample and of good quality.

The borough of Lansford is furnished with water by the Panther Valley Company, duly incorporated in eighteen hundred and eighty-six, to supply water for domestic, manufacturing and other purposes to the public in the borough of Lansford and such persons, partnerships and corporations residing or doing business therein or adjacent thereto, as may desire the same. This company is owned and controlled by the Lehigh Coal and Navigation Company.

village. Facilities should be afforded whereby the reservoir may be entirely drained if occasion should demand it.

The drainage area above the dam is possibly four square miles in extent and its dry weather yield is said to be not less than three hundred thousand gallons daily. So it is the flow of the stream which is to be depended upon to supply the water and not the storage. The dam, therefore, will serve to divert the water to the proposed six inch supply main and at the same time store a sufficient quantity of water to meet any extraordinary demand like that of a conflagration during dry weather. The supply main to the town should be provided with ample drainage blow-offs.

There are no houses or farmland upon the water shed above the proposed reservoir. The territory is entirely in the gannister region and almost all of it is owned by the Harbison-Walker Company of Mt. Union, a concern engaged in the manufacture of silica brick. This company and the Mt. Union Silica Brick Company own thousands of acres of mountain land surrounding Mapleton from which they are shipping the gannister rock for the manufacture of silica brick. At present only the loose surface rock ranging in size from one cubic yard to four or five inches cube is being used. Tramways are extended along the sides of the mountain and are moved about from time to time as the stripping operation proceeds. On Scrub Run water shed no gannister has yet been removed. The best of the timber was taken off about two years ago. Traces of the old logging roads may be seen on the watershed today.

So much of the water as may be necessary for the purposes of the Company has been appropriated of the following springs:

I. N. Swope Springs:

Two springs located on land of I. N. Swope, Union township, the water from said spring to be diverted at a point near the eastern boundary line of the borough of Mapleton and the line of Union township.

B. O'Connor & Sons Spring:

One spring on land of B. O'Connor & Sons, located near the boundary line between the borough of Mapleton and Union township, the water from said spring to be diverted at or near the eastern boundary line of the borough.

Swope, Gayton & Kaufman Spring:

One spring on land of I. N. Swope, W. C. Gayton and J. W. Kaufman, located in Union township, the water of said spring to be diverted at or near the eastern boundary line of the borough. The waters from these springs, four altogether, unite in one stream in a steep wooded gulch which extends to the Juniata River near the eastern boundary of the borough. The Swope springs are the ones now piped to the reservoir of the aforesaid seven partners. Mr. Swope has sold the surplus water of these springs to the Jack's Mountain Water Company, which will build another masonry reservoir in the vicinity, and pipe said surplus water from the springs to said reservoir. It will be twenty feet square and ten feet deep and hold thirty thousand gallons. When full, the water level will not be high enough to supply houses on the second story except in the low part of the village. These springs are said to now yield five hundred thousand gallons daily.

The Kaufman spring is high up on the mountain side. It is proposed to pipe this water into a masonry reservoir twenty feet square and ten feet deep and holding thirty thousand gallons, whose elevation shall be on a level with the elevation of the water in the Scrub Run reservoir—about two hundred and seventy feet above the town. The site for the reservoir and land for the pipe line has been purchased.

The O'Connor spring is also high on the mountain side and may be piped if necessary to the Kaufman reservoir. At present it feeds the Swope springs. It is stated that the Kaufman spring alone will furnish ten thousand gallons daily or more. A two inch pipe has already been laid from this reservoir to the town a distance of about one thousand feet, and two inch pipe has also been laid in some of the village streets in order to comply with the terms of the borough franchise which stipulated a forfeiture of the franchise in event of work of construction being delayed beyond August fourth, nineteen hundred and six. Said two inch pipes will be ultimately connected with the four inch mains which are to be laid in the streets of the village on delivery from the foundry. It will be impossible to purchase this pipe and lay the same before the summer of nineteen hundred and seven.

Some of the gannister rock from the mountain sides above the spring has been stripped, but there still remains, a considerable area to be worked, some of which may be reached within a year. Possibly the presence of laborers here might pollute the springs and precautionary measures therefore should be adopted.

So much of the water of the spring known as Willow Spring, and so much of the water in the stream in Jackson House Hollow as may be necessary for the purposes of the company have been appropriated to be diverted at points

in Brady Township near the old turnpike leading from Philadelphia to Pittsburg, on lands of the Harbison-Walker Refractory Company.

These sources are north of the Juniata River, near it, and but a short distance east of the borough. Here there are several ravines extending a short way northward in the mountains. In the first one of these hollows Willow spring is located. The third one is termed Jack's Mountain House Hollow. Willow spring water is to be collected in a small reservoir built of masonry twenty-four feet square and ten feet deep, to be placed at the same elevation as the proposed dam in Jack's Mountain House Hollow, namely two hundred and ninety feet above Mapleton.

There is a small stream in the latter ravine across which a dam is to be constructed about fourteen hundred feet north of the river. The reservoir so constructed will hold about ninety thousand gallons. The yield of the stream at this point is said to be one hundred thousand gallons during dry weather. It is proposed to furnish the waters of these sources to Mapleton through one line of supply mains, the size of which is not stated or shown on the plan. The water shed of the spring is about thirty acres and that of the stream one hundred acres, neither is inhabited and both are covered with gannister rock. The best of the timber has been cut off.

The proposed sources of supply are apparently free from permanent sources of pollution, the amount of water appropriated is not disproportionate to the prospective demands of Mapleton, and the introduction of a public system of water works for domestic and fire purposes is needed in the borough. Such a system will tend to reduce the number of individual wells now in use in the village, and consequently reduce the risks usually attendant upon the drinking of well water drawn from the ground in proximity to cesspools and privies. The work should be so constructed, however, that the service will be satisfactory at all times, and such satisfactory service demands that no pipe of less diameter than four inches shall be laid in the streets where fire hydrants are to be installed.

It has been determined that the proposed source of supply will not be prejudicial to the public health and permission is hereby granted to the Jack's Mountain Water Company to construct water works for the supply of water to the public in the borough of Mapleton under the following conditions and stipulations:

FIRST: That all springs shall be walled up and covered over and amply protected from surface wash, and the water from the springs shall be piped into the collecting reservoir which shall be made water tight, be protected from surface wash, and be covered over and securely protected from molestation and malicious contamination. Each collecting reservoir shall be provided with ample facilities for complete drainage, and plans of the reservoirs and springs, piping, valves and land upon which they are located shall be submitted to and filed with the Commissioner of Health.

SECOND: Plans of the dams and reservoirs for the storage of surface waters, together with plans of their water shed, shall be prepared and filed with the Commissioner of Health. Ample drainage facilities shall be afforded at the dam whereby the reservoirs may be emptied whenever necessary.

THIRD: The said company shall make arrangements with the proper owners whereby movable privies with casks or tight boxes shall be provided for the use of the laborers employed on the water sheds, and said casks or boxes, before being filled, shall be removed beyond the limits of the watershed and their contents be satisfactorily disposed of to the approval of the Commissioner of Health.

FOURTH: A patrol of the water shed shall be made by the water company every three months, or oftener if required, and reports thereof be made to the Commissioner of Health relative to any source, or possible source of nuisance or menace to the water supply.

FIFTH: All surface soil, stumps, roots and vegetable matter shall be removed from the site of the proposed reservoirs below the flow line thereof.

SIXTH: Scrub Run reservoir shall be shut off from the lower part of the ravine and from the nearby township road by a suitable fence, and a dyke shall be built along said road to preclude surface water therefrom entering the reservoir.

SEVENTH: If at any time the water supply is found to be unsuitable, in the opinion of the Commissioner of Health, for the uses to which it is put, such remedial measures shall be adopted as the Commissioner of Health may prescribe or approve.

EIGHTH: Detail plans of the supply mains and of the distributing pipes in the borough, showing their sizes, elevations, location of gates, hydrants and blow-offs, shall be prepared and submitted to the Commissioner of Health. Ample facilities shall be provided for the drainage of the system at all low points, special attention being called to this important feature of the design. No pipe of less diameter than four inches shall be laid in any street or way upon which a fire hydrant is to be installed. At the close of each season's

SECOND: That the land about the spring and reservoir shall be enclosed by a tight board fence, and the reservoir shall be roofed over.

THIRD: That the supply main shall be placed in the proposed reservoir above the bottom, and a drain pipe shall be placed in the reservoir at the bottom thereof, and both pipes shall be provided with proper gates.

FOURTH: That the proper blow-offs shall be put on dead ends of the distributing system, and at the low point or points in the said pipe system ample facilities shall be provided for quickly draining all the pipes contributing to the said low point or points.

FIFTH: That the Crosby Gas Company shall prepare and file with the Commissioner of Health, on completion of the proposed system of water works, a detailed plan and elevation of the reservoir and its appurtenances, and a plan of the location and size of the pipes and the blow-offs of the distribution system.

SIXTH: That if at any time the said spring is found to be unsuitable, in the opinion of the Commissioner of Health, for the uses to which it is put, that the said supply shall be discontinued.

SEVENTH: The permission hereby and herein granted is under the further condition and express stipulation that the applicants first comply with all laws and ordinances regulating and controlling the business of supplying water to the inhabitants of a village.

Harrisburg, Pa., December 14th, 1905.

NORTH EAST, ERIE COUNTY.

This application was made by the borough of North East, Erie County, and is for permission to extend the public system of water works and to obtain an additional source of supply.

North East borough is located on Lake Erie about one mile distant therefrom, and about seventeen miles east of Erie city. It is in the centre of an agricultural and market gardening district, where vineyards and fruit orchards abound. There are several fruit canning establishments in the vicinity.

The population of the borough is about twenty-five hundred, and fifteen years ago it was one thousand five hundred and thirty-eight.

The water works are owned by the municipality. Most of the citizens take public water. Perhaps there are a dozen wells in the town. Because the soil is porous and cesspools and privies abound, water taken from wells sunk in this soil is suspicious and liable to cause sickness if used for drinking purposes. Therefore, the use of well water should be discouraged.

The present water supply to the public is derived from springs which feed a storage reservoir and afford an abundant amount of water for the needs of the municipality during all but the summer season. Each summer, however, to supply the deficiency, water is taken from Baker Creek and from Sixteen Mile Run.

Both of these surface waters are polluted, or liable to be polluted seriously by sewage.

The storage reservoir through which all water supplied to the borough has to pass, is located on a hill about a mile south east of the centre of the borough and about two hundred and thirty-eight feet above it, so that the pressure averages about one hundred pounds in the water mains in the central part of the district. This reservoir is an earth bank structure, rectangular in shape, lined with brick on the sides and bottom, and having a maximum depth of water when full of sixteen feet and a storage capacity of four million gallons.

There are eleven springs which feed the reservoir; eight of them are located in a fruit orchard on the Lupe farm about a mile and a half distant from the reservoir, and the other three are near the reservoir. These springs are each enclosed in a masonry structure arched over and provided with a heavy manhole cover. They are away from habitations, located on side hills, well protected and non-suspicious as to purity. Altogether they supply a maximum of two hundred and fifty thousand gallons per day, but during ordinary dry weather of the summer, the springs do not yield more than approximately one hundred thousand gallons daily.

One of the dry weather emergency supplies, Baker Creek, furnishes from fifteen thousand to twenty-five thousand gallons daily. A stone dam across this creek serves to divert the water into a pipe leading to the reservoir. Above this intake dam there is one dwelling on the drainage area which is small in extent. The greatest source of pollution is the highway contiguous to the creek and dam. The area is cultivated land.

The other of the dry weather emergency supplies, Sixteen Mile Run, is used to make up the deficiency in the reservoir created by the demands of the borough. From one hundred thousand to one hundred and fifty thousand

gallons daily have been taken from Sixteen Mile Run for this purpose. The water is pumped to the reservoir. The station is located on the bank of the Run at the base of the hill upon which the storage reservoir is located.

The drainage area of Sixteen Mile Run above the station is approximately eight square miles. It contains a population of about two hundred. The dry weather flow of the stream at the intake is about nine hundred thousand gallons daily.

The cost of pumping this water, the growth of the town, and the desire for a constant pressure in the water main, are the reasons why the borough wishes to obtain an additional supply by gravity which will do away with the necessity of pumping any water.

It is proposed to obtain the additional supply from one of the branches of Sixteen Mile Run by means of an impounding reservoir which will hold twenty-five million gallons of water. The drainage area of this reservoir will be nine-tenths of a square mile, and will deliver during dry weather approximately seventy-five thousand gallons daily, and springs on the water shed will furnish possibly fifty thousand more daily, so that these amounts in conjunction with the storage should supply about three hundred thousand gallons daily throughout the year and a series of years.

It is proposed to use this source in addition to the present ground water supply. The proposed reservoir will be about two hundred and fifty feet higher than the present reservoir, so that an eight inch main will deliver water from the new to the old reservoir at a rate amply able to meet any demand for fire service in the town.

Topographical surveys have not yet been made of the site of the proposed reservoir which is somewhat swampy and flat in sections. The surface area of the proposed reservoir will be about ten acres and the deepest water will approximate twenty feet and the shallowest three feet. Possibly, at high water, fifty per cent. of the area will have a depth of five feet or thereabouts. Probably in order to obviate an objectionable growth of algae, it will be essential to take off the loam and top-soil from the site of the reservoir.

Immediately above the proposed reservoir there is a village settlement of eleven dwellings, three of which are vacant, and the others are occupied. There is also a district school there. The borough requests the State Department of Health to put rules and regulations in force to protect the reservoir water from pollution by sewage from privy vaults and stables. Unquestionably, this should be done, but the risk of pathogenic pollution of the reservoir water would still be great and nothing short of filtration of the water derived from this drainage area, together with the enforcing of proper rules and regulations can be considered adequate protection to those who will use this water for drinking purposes.

It has been determined that the proposed additional supply will not be prejudicial to the public health and permission is hereby given to the borough of North East to construct the proposed additional water works under the following conditions:

FIRST: That the borough shall prepare and present detailed plans of the proposed reservoir and dam, overflow, outlet and drainage pipes, gates and appliances, and the supply main to the present distributing reservoir and submit the same to the Commissioner of Health who may modify or amend them, and the borough shall not begin construction of the reservoir until the plans so approved or amended have been returned by the Commissioner of Health to said borough.

SECOND: That a filter shall be provided and installed on the line of the supply main between the proposed reservoir and the existing distributing reservoir of the said borough's water works system according to detail plans to be submitted to and approved by the Commissioner of Health, and no water shall be supplied from the proposed reservoir unless it shall have been adequately purified by said filtration.

THIRD: That the loam and top soil shall be removed together with all vegetable matter from the bottom and sides of the proposed reservoir unless in the opinion of the Commissioner of Health it shall be deemed unnecessary after further investigation of the subject.

FOURTH: After the installation of the proposed additional works, the borough shall abandon the present pumping station and force main and also the supply from Baker's Creek and thereafter, no water shall be delivered from these sources into the present distributing reservoir of the water works system, either directly or indirectly. Connecting pipes with these sources shall be discontinued with the distributing reservoir as soon as the proposed additional supply is obtained, and, meantime, the proper municipal authorities shall notify the water consumers of the borough of the danger of drinking the water supplied from Baker's Creek and Sixteen Mile Run. A safeguard is the boiling of all water used for drinking or the washing of food stuffs eaten in the raw state.

It has been determined that the source of water supply will not be prejudicial to the public health and permission is herein granted the said company to construct the proposed intake dam at the junction of Earnest Run and Bens Creek in Portage township, Cambria County, and to supply water therefrom to pipe lines now in use for distributing water as aforesaid, on the following conditions:

FIRST: That said company shall have a monthly examination made of the premises at and about the said dwelling house on said water shed and of any other dwelling, buildings, camps, etc., that may be erected on said watershed, and report the sanitary condition thereof to the State Health Commissioner.

SECOND: That if at any time the Commissioner of Health determines that said supply is unsuitable for drinking purposes, said supply shall be discontinued for drinking purposes or such precautions and remedies applied as the Commissioner of Health may approve or prescribe.

THIRD: This permit is granted under the express stipulation that all laws regulating and controlling the business of supplying water as aforesaid shall have been complied with by said company.

Harrisburg, Pa., May 18th, 1906.

SAYLORSBURG, MONROE COUNTY.

Hamilton Water Company.

This application was made by the Hamilton Water Company for permission to introduce a system of water works in the village of Saylorsburg, township of Hamilton, Monroe County.

The proposed source of supply is located at the summit of the Delaware Basin, about two and a half miles west of Saylorsburg, in the northern part of Ross Township, at the head waters of one of the tributaries of McMichael Creek. These head waters are permanently supplied by springs.

The Hamilton Water Company purchased about an acre of land on this stream fed by said springs, and the springs, thereby forming a small reservoir in which are impounded both spring and surface water which it is proposed to supply to the village.

The land upon which said springs abound is natural meadow and grass land. The said company has not acquired the fee in the land but has purchased the right to use the water therefrom.

There are three possible sources of pollution on the water shed.

The water from the reservoir will flow to the village by gravity.

The Enamelled Brick Company in Saylorsburg is anxious to connect its works with the supply main of the Hamilton Water Company in order to lessen the expense which the said Brick Company is now called upon to bear in obtaining water elsewhere.

After careful consideration, it is determined that the proposed source of supply will not be prejudicial to the public health provided the water be used for manufacturing and fire purposes only, and that no connection to the system be made other than for manufacturing or fire purposes until those measures herein prescribed for the protection of the source of supply have been put in force. Therefore, permission is hereby given to the said Water Company to use said source of supply under the following conditions and stipulations:

FIRST: That the waters of the reservoir, springs, and source of supply shall not be used for drinking purposes, and no connection shall be made with the system for other than manufacturing or fire purposes until these measures herein provided for the protection of the source of supply shall have been put in force.

SECOND: That ample facilities for draining the storage reservoir and the supply pipe and entire system, shall be provided if this provision has not already been made. A description of these facilities and a map thereof shall be filed with the Commissioner of Health.

THIRD: That the said water company shall monthly inspect every possible source of pollution on the water shed of the proposed supply, and at its own expense do those things necessary to protect the purity of said supply. Furthermore, the said water company shall cause the privy of the farm dwelling near the reservoir to be provided with a masonry water tight vault, and the contents thereof to be frequently limed and regularly removed at proper intervals to some place beyond the limit of the water shed. Furthermore, the said water company shall cause a water tight concrete pit to be built and used for the manure pile at the barn near the reservoir, and a shed roof shall be built over the pit to keep out the rain. Furthermore, to prevent surface wash from the lands used for agricultural purposes reaching the springs and the reservoir—provided any lands on the water shed are so used—either the said springs or any or all of them shall be walled up above

the surface of the ground and piped to the collecting reservoir into which reservoir shall flow no water except the said spring water, or ditches shall be constructed on the borders of the meadow where the said springs are located and these ditches shall intercept and convey away to below the said reservoir all surface water from the water shed.

FOURTH: That if at any time the said water supply is found to be unsuitable in the opinion of the Commissioner of Health for the uses to which it is put, the said supply shall be discontinued.

FIFTH: That within ten weeks from the date of this permit, the Hamilton Water Company shall file with the Commissioner of Health, a plan showing the village of Saylorsburg and all of the territory which may be comprised in the district eventually to be supplied with water from the said source. Also a detailed plan of the reservoir and a plan of the water shed, having indicated upon it all roads, buildings, springs, streams, etc.

SIXTH: That plans of the ditches herein provided for shall be submitted to the Commissioner of Health for his approval before the same are constructed by said water company.

SEVENTH: That in order to avoid possible pollution from the road, a bank and gutter shall be constructed between the road and the meadow, beginning at the reservoir and extending far enough above the springs to keep surface wash from the road entering the meadows or the springs.

EIGHTH: That this permit is granted under the express stipulation and further condition that the Hamilton Water Company shall have complied with all appurtenant laws and ordinances regulating and controlling the business in which said company purposes to engage as set forth in the said application.

Harrisburg, Pa., February 9th, 1906.

SAYRE, BRADFORD COUNTY.

Bradford County Water Company.

This application was made by the Bradford County Water Company of Sayre, Bradford county, Pennsylvania, and is for permission to construct water works to supply water to the public within the borough of Sayre.

It appears that the Bradford County Water Company, of Sayre, Pennsylvania, was duly chartered March third, one thousand nine hundred and four, to supply water to the public in the borough of Sayre only.

At the present time there are twenty-five and three-tenths miles of pipes in Sayre, twelve miles of which are three and four inches in diameter. The water is mechanically filtered after being taken out of the Susquehanna River at a point within the borough. The plant is owned by the Sayre Water Company.

The Susquehanna and Chemung rivers meet at a point in Pennsylvania about five miles below the boundary line between New York and Pennsylvania. In this fork of land which is about four miles wide at the State line and about one mile wide half way to the confluence of the two rivers, are located the boroughs of Athens, Sayre and South Waverly. The Chemung river is a westerly boundary of the fork and near its mouth which is about one mile below Athens receives the drainage of two tributaries namely, Murray Creek and Wolcott Creek. The latter is the southerly stream. A half mile or so below the Chemung River the Big Buck Creek empties into the Susquehanna river. All three of these small tributaries rise in the hills to the west and come down easterly through precipitous courses to the rivers. The proposed water works contemplate the interception of the upper waters of these three tributaries in reservoirs whose elevations will be sufficiently high to deliver the supply by gravity to the borough of Sayre.

The great consumer of the proposed water works is to be the Lehigh Valley Railroad Company. For the said railroad company's repair shops at Sayre and for locomotive use and to meet the demands of the insurance underwriters of a supply of fifteen hundred gallons per minute at a head of one hundred and fifty feet, it will be necessary to furnish on demand water at the rate of three million gallons per day, of which two million gallons would be constantly required. Add another million gallons for the requirements of the borough at present and it is seen that a daily supply of three million gallons for Sayre is wanted. To meet these needs, the Bradford County Water Company proposes to build a pipe line to Sayre sufficiently large in diameter to maintain the water level in the proposed Ellsbree reservoir at a height sufficient to afford the proposed pressure at the Lehigh shops when the maximum draft is made on said reservoir.

The Ellsbree reservoir site is located on Wolcott Creek, three miles below Kane pond. This pond is now appropriated by the Fairview Water Company, of Athens, for the purpose of supplying the borough of Athens.

adequate supply of good water, and natural facilities for drainage from the Institution building.

The commission has adopted a site located in East Vincent township, Chester county, about one mile north of the borough of Spring City, and about one-half mile west of the Schuylkill river, and immediately south of it. About three hundred acres of land have been acquired extending from the low lands bordering the river back up on the hillsides. The elevation of the Schuylkill Navigation Company canal, which is said to be the boundary of the property on the flats, is about one hundred. The elevation of the highest land on the property is three hundred and fourteen feet. At an elevation of about two hundred and fifteen feet the new buildings are being erected. The Schuylkill river makes a sweep of about one-half circle at this point, and the eminence on which the buildings are located is near the centre of this circle. Between the buildings and the canal are the tracks of the Schuylkill Division of the Pennsylvania Railroad.

The nearest public water works to the Institution are at Spring City borough. The supply is furnished by the Home Water Company of Royersford, which borough is on the opposite side of the Schuylkill river from Spring City. The supply, however, is known to be obtained from the Schuylkill river and the waters are filtered before being used. Hence the source of supply is not above suspicion, and an independent supply of pure and abundant water, if obtainable at the Institution, should be sought in preference to obtaining a supply from the said water company.

The institution is being designed to accommodate one thousand people, but for the present, buildings with accommodations for one-half this number only are being provided. A supply of water is sought which will furnish one hundred thousand gallons daily and at the rate of two hundred thousand gallons daily in the future. The average consumption for the present is estimated at fifty thousand gallons daily.

On the property of the State it is proposed to construct a reservoir and two artesian wells. The wells are to be driven to any depth not exceeding five hundred feet to produce at least one hundred thousand gallons of water in twenty-four hours from each well without interfering with the other. Each well is to be drilled ten inches in diameter for the first fifty feet in depth, lined with best ten-inch standard wrought iron pipe to the solid rock, and into this ten-inch pipe is to be inserted an eight-inch wrought iron pipe for the full depth drilled thereof of fifty feet and cement grout is to be placed between the two pipes to exclude all surface water. The eight-inch well is then to be drilled to the depth of five hundred feet or until one hundred thousand gallons of water is obtained in each well, whereupon tests are to be instituted for twenty-four hours to prove the capacity of the wells.

It is proposed to raise the water from these wells by compressed air, and to deliver it into a reservoir to be excavated in earth on the highest part of the said property.

The reservoir will have a capacity of about two hundred and seventy-five thousand gallons. It is to be one hundred and four feet long by eighty-four feet wide on top and fifty feet long by thirty feet wide on the bottom. The total depth is thirteen and one-half feet, but the overflow pipe which will control the high water mark is to be set three feet below the top of the embankment, so that the greatest depth of water in the reservoir will be ten and five-tenths feet. This high water mark is at elevation three hundred and five. It is proposed to deliver the water through an inlet chamber at high water elevation and to distribute it from the reservoir through an outlet chamber and pipes at the bottom thereof, or near the bottom. Two twelve-inch drainage pipes are provided and fitted with gates. Whenever it is necessary to drain the reservoir, all of the water will have to be withdrawn because no division wall is provided. The reservoir is to be uncovered, and the plans provide for a walk around the top of the embankment adjacent to the fence which it is proposed to erect at the top of the reservoir slope.

The floor of the reservoir and inner slope of the embankments are to be lined with a layer of clay puddle on which is to be placed a layer of concrete supporting a finishing surface of asphalt. The provisions for controlling the admission and discharge of water to and from the reservoir are good, and the provisions of the specifications for the construction of the reservoir if faithfully executed will insure safe work.

The proposed artesian wells are to be drilled near the reservoir. The elevation of the surface of the ground is about three hundred. The Schuylkill river is about one hundred. The geological formation in the territory is the new red sandstone. The surface area which would contribute ground water is very limited and would not, in all probability supply the quality of water sought. The Commission intends to obtain a deep seated ground water. The question of quality, as well as quantity is wholly problematical and can only be determined by a test. However, it is understood that similar wells in the general locality yield abundance of good water.

Should a suitable water be found here, to be determined by tests, there is quite likely to be a deterioration in its quality if exposed to light in the reservoir. To prevent the growth of organisms which impart disagreeable odor and

taste to ground waters, the reservoir should be covered and the plans should anticipate this, and the Commission be prepared to cover the reservoir on short notice in case experience proves it to be necessary.

The walk around the top of the reservoir affords exceptional facility for malicious or careless contamination of the supply. A fence should be constructed at the foot and outside of the embankments to serve as a barrier to keep everybody away from the reservoir, except those whose business may take them there.

A better circulation of water would be maintained in the reservoir by extending the outlet pipe across the bottom of the reservoir to the opposite end of the inlet pipe. This might exert a material influence in maintaining at a minimum the growth of vegetable organisms frequently noted in similar reservoirs storing ground waters.

It has been determined that the proposed source of supply will not be prejudicial to public health and permission to install the proposed water works is given under the following conditions and stipulations:

FIRST: That no new source of supply other than ground water from the property of said Institution for the Feeble Minded and Epileptic shall be sought without the advice and approval of the Commissioner of Health.

SECOND: That upon completion of the wells a detailed description of their construction, capacity, strata from which the water is obtained and thickness and character of each stratum pierced in sinking the wells, together with a plan of their location and any other information desired shall be submitted to and filed with the Commissioner of Health.

THIRD: That detailed plans of the reservoir with its inlets and outlets and all appurtenances, as constructed, shall be filed with the Commissioner of Health.

FOURTH: If at any time the said water supply is found to be unsuitable, in the opinion of the Commissioner of Health, for the uses to which it is put, such remedial measures shall be adopted as the Commissioner of Health may prescribe or approve.

FIFTH: The reservoir waters shall be protected from careless and malicious contamination by such means as may be approved by the Commissioner of Health. To this end a fence shall be constructed at the foot or outside the reservoir embankment to serve as a barrier against the possibility of such contamination.

SIXTH: The authorities of the Institution shall monthly inspect the sanitary condition with respect to sewage disposal of the houses in the vicinity of the reservoir and report thereon to the Commissioner of Health.

It is suggested that the outlet pipe of the reservoir be extended to the opposite end from the inlet pipe and that on said outlet a venturi meter be installed whereby a daily account of the water used at the Institution shall be recorded. Such a record would doubtless prove of much value should alterations or extensions of the system ever be required.

Harrisburg, Pa., September 21st, 1906.

STOYSTOWN, SOMERSET COUNTY.

Stoystown Water Company.

This application was made by the Stoystown Water Company and is for permission to install a new system of water works for the supply of water to the borough within the borough of Stoystown.

The petitioners represent that the inhabitants of Stoystown now procure water from dug wells or springs, many of which have become unsuitable sources of drinking water, by reason of sewage pollution, and hence they are prejudicial to the health of the community; that many of the citizens are desirous of obtaining a better supply of water for domestic uses, and they also want fire protection in the town. In compliance with these sentiments and the necessities of the case, the Stoystown Water Company was organized and chartered under the laws of the Commonwealth, April seventeenth, nineteen hundred and six.

An investigation has proven these representations to be correct.

It appears that the borough has not increased in population during the last forty years; it now has three hundred and forty inhabitants. There are no industries, it being a rural community. It is located among the mountains in the northern central part of the county at the summit of the water shed of Stony Creek on the western slope thereof, and is in the drainage area of the Conemaugh river, Allegheny basin.

Through the central part of the borough there is a ravine in which is Maurers Run, whose waters come from an area of about three hundred acres. It is in the valley of this run just above Stoystown, that the proposed source of supply is to be obtained. Two eight-inch wells have been driven fifty-eight feet below the surface of the ground through shale and sand rock to a somewhat porous sandstone. In drilling these wells gray shale was encountered for the first thirty feet, then a stratum of hard sand rock four feet in thickness and then twenty-four feet through a more or less porous rock to the hard bottom.



APPENDIX "B."

SEWERAGE AND SEWAGE DISPOSAL PERMITS AND DECREES

ISSUED BY THE

COMMISSIONER OF HEALTH

UP TO

JANUARY 1st, 1907.

FIRST: That permission is granted for the construction of a twenty-four-inch conduit up River Road from the Susquehanna river to the twenty-four-inch drain in Cherry street, and the construction of a six-inch sewer in Fifth street to be connected with the existing ten-inch pipe in Elm street, which in turn empties into the said twenty-four-inch Cherry street drain; and the use of these conduits for the conveyance of both sewage and storm water to the Susquehanna river until sewage disposal works shall have been installed, when separate conduits for the removal of said sewage shall be provided.

SECOND: That proper manholes shall be placed in all changes in line and grade of said sewers and drains.

THIRD: That suitable catch basins to intercept silt, etc., from reaching and clogging the sewers and drains shall be provided at each surface water inlet into the system.

FOURTH: That accurate plans and profiles of the sewers and their appurtenances shall be made and filed with the Commissioner of Health upon completion of the construction of said sewers.

FIFTH: That on or before January first, nineteen hundred and eight, plans for the treatment of all the sewage of the town shall be prepared by said town and submitted to the Commissioner of Health for his consideration and advice.

SIXTH: That no pathological material from laboratories shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

In the event of the adoption of the alternate, which is the intercepting sewer proposition, the conditions upon which its use is permitted shall be as follows:

FIRST: That either the western sewer outlet drain between the river and the canal shall be enlarged and reconstructed, or a permanent sewage lift shall be installed at or near the canal, and the sewage from the proposed intercepting sewer be delivered temporarily through said outlet into the Susquehanna river until such sewage disposal works shall have been installed.

SECOND: That an intercepting sanitary sewer in or near the canal bed shall be extended from or near the western sewer outlet to or near Cherry street.

THIRD: That a sub-main sanitary sewer be extended in Cherry street, Sixth, Elm and Fifth streets and that the sewage from the State Normal School and from the properties east of Wood street, may be diverted from the central sewer district and discharged by suitable pipes into the said sub-main sewer.

FOURTH: That the said outfall, sewage, lift, intercepting sewer and lateral connections shall not be built until detailed plans and profiles thereof shall have been submitted to and approved by the Commissioner of Health.

FIFTH: That on or before January first, nineteen hundred and eight, plans for the treatment of all of the sewage of the town shall be prepared by said town and submitted to the Commissioner of Health for his consideration and advice.

SIXTH: That no pathological material from laboratories shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., March 15th, 1906.

BLAKELY, LACKAWANNA COUNTY.

This application was made by the borough of Blakely, for permission to extend its sewerage system and to discharge the sewage therefrom into the Lackawanna river.

In view of the necessary and existing pollution of the Lackawanna river by industrial wastes at points above, within and below the borough of Blakely and throughout the whole valley of the said river and because all other boroughs in the valley discharge sewage into the river, and there is no evidence that a nuisance exists by reason of the discharge of the present Blakely sewer into the river, but to the contrary, there is ample evidence that the public health demands an extension of this sewer, it has been determined that the interests of the public health demand that the application of the petitioners as aforesaid, be granted on the following conditions:

FIRST: That a plan for a system of sewerage for the village of Peckville shall be prepared and submitted to the Commissioner of Health for his approval on or before January first, one thousand nine hundred and eight.

SECOND: That if at any time, in the opinion of the Commissioner of Health, the discharge of sewage into the Lackawanna river from this sewer outlet herein approved of, is injurious to the public health, then upon notice by the Commissioner of Health, said sewer outlet shall be discontinued.

THIRD: That no pathological material from laboratories shall be permitted to discharge into the sewers. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., April 10th, 1906.

CARRICK, ALLEGHENY COUNTY.

This application was made by the borough of Carrick for permission to install a system of sewerage and to discharge the sewage therefrom, untreated, into the waters of the State.

It appears that Carrick borough, which is within three miles due southeast from the Pittsburgh City Hall, and therefore comes within the bounds of the future Greater Pittsburgh, at the time of its incorporation, June, nineteen hundred and four, had a population of about forty-five hundred, which has since increased to about fifty-five hundred. It is entirely a residential suburb underlain by mostly worked out coal levels which are, without exception, above the valleys of the runs, so that when abandoned, the mines still continue to naturally drain into the open water courses. Hence large quantities of sulphur water are constantly being emptied into the runs.

Carrick has no sewers. Six hundred and forty-three dwellings have out-houses, one hundred and twenty-two drain their water closets, bath rooms and sinks either directly or indirectly into the street gutters and two hundred and eighty-two dwellings drain into the abandoned coal mines. The water supply is largely furnished by the American Water Works and Guarantee Company, the source of supply being the Monongahela River, but there are about two hundred dug wells in the borough.

There is a ridge running lengthwise through Carrick, separating it into two distinct water sheds. The land to the east of this ridge is drained by runs tributary to Beck's Run, which flows northeasterly a distance of about two miles and enters the Monongahela river one-half mile above Ward Twenty-seven, of the city of Pittsburgh. The land to the west of this ridge is drained by runs tributary to Saw Mill Run, which flows northwesterly parallel to the Monongahela River, entering the Ohio River about half a mile below the confluence of the Monongahela and Allegheny Rivers, the length thus traversed being about five miles.

The borough of Mt. Oliver and Lower St. Clair township discharge sewage into Beck's Run.

The boroughs of Oliver, Knoxville, West Liberty, Montooth and several of the wards of the city of Pittsburgh, called South Pittsburgh, are among the places discharging sewage into Saw Mill Run. It is proposed by the borough of Carrick to construct a system of separate sewers and to discharge the sewage therefrom partly into Beck's Run and partly into Saw Mill Run.

Undoubtedly it would add to the health and comfort of the inhabitants, if the borough be permitted to build sewers and drain them into the said runs at the borough limits or outside thereof as proposed.

In the interests of the public health permission is hereby granted to the borough of Carrick to construct the sewer system proposed under the following conditions:

FIRST: That all roof and storm water shall be excluded from the system.

SECOND: That while the proposed sizes are approved, attention is called to the fact that the only flow in the sewers will be the water which has passed from the water supply system through the house to said sewers and hence the flow will be small and the size of the sewers may with perfect safety and with economy be reduced.

THIRD: That plans of the sewers giving sizes, elevations, grades, shall be prepared and filed with the Commission of Health at the close of each season's work, so that each year an accurate record of all of the sewers of the system built to date will be on file in the Department.

FOURTH: That approval of the various sewer outlets proposed is given temporarily on the condition and express stipulation that there is no remonstrance thereto now and that none will develop before the said system is built and sewage is discharged therefrom. Also that all laws and ordinances relating to the laying and maintaining of sewers shall have been complied with.

FIFTH: That before the said system of sewers or any part thereof is put in use, plans for the treatment of the sewage of said system shall be prepared and submitted to the Commissioner of Health, who shall modify or amend or adopt them and specify the time within which the purification of the sewage shall be brought about.

SIXTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., April 17th, 1906.

CHAPMAN TOWNSHIP, CLINTON COUNTY.

This application was made by the Drocton Land Company, Renovo, Clinton county, and is for permission to build a system of sewerage and to discharge the sewage therefrom, untreated, from said sewer system into Paddy's Run, within the limits of Chapman township, said county.

It appears that the Drocton Land Company was incorporated under the laws of the Commonwealth on March thirty-first, nineteen hundred and six, for the

discharge the sewage therefrom into Paddy's Run, under the following conditions and stipulations:

FIRST: That all storm water shall be excluded from the sewers, that they shall be laid with cement tight joints and be provided with suitable inspection manholes at every change in line and grade and at street intersections.

SECOND: The lateral sewers shall not be smaller than six inches in diameter, and the main sewers of the system need not be over eight inches in diameter with the exception of the outlet into Paddy's Run at the foot of Susquehanna avenue, which may be twelve inches in diameter and consist of cast iron pipe where it enters Paddy's Run.

THIRD: If it shall be determined at any time by reason of the small flow in Paddy's Run, or for any other cause, that, in the opinion of the Commissioner of Health, the outlet into Paddy's Run is a nuisance or menace to public health, then said outlet shall be extended below the low water line into the Susquehanna River according to a plan to be approved by the Commissioner of Health.

FOURTH: The Drocton Land Company shall lay the proposed sewers on true grades and at the close of each season's work submit plans and profiles of the sewers built during the year to the Commissioner of Health for filing. Before sewers are laid and sewage discharged therefrom into the Susquehanna River from the Western District, detailed plans of the sewers showing their sizes, grades and the precise location of the river outlet shall be submitted to the Commissioner of Health for his approval.

FIFTH: If for any reason the sewer system, or any part thereof, or the discharge of sewage into the streams has, in the opinion of the Commissioner of Health, become a menace, or injurious to the public health, the company shall adopt such remedial measures as the Commissioner of Health may suggest or approve.

SIXTH: This permit to discharge sewage into the streams shall cease on the first day of October, one thousand nine hundred and eight. If at that time the Drocton Land Company shall have complied with the conditions of this permit, then the Commissioner of Health may extend the time within which the sewage of the system may continue to discharge into the waters of the State. Furthermore, if, in the opinion of the Commissioner of Health, it becomes necessary to consider the treatment of the sewage, preliminary plans thereof may be called for to be submitted for his approval on or before October first, one thousand nine hundred and eight.

SEVENTH: No pathological material from any laboratory shall be permitted to be discharged into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., October 10th, 1906.

EASTON, NORTHAMPTON COUNTY.

This application was made by the city of Easton and is for permission to extend its sewerage system and to discharge the sewage therefrom into the waters of the State.

The city of Easton is situated on the eastern boundary of the State at the confluence of the Delaware and Lehigh Rivers. Opposite it on the east bank of the Delaware River in the State of New Jersey is the town of Phillipsburg.

The Lehigh River water shed contains a population of about two hundred and thirty thousand people, distributed in three cities, twenty-nine boroughs and sixty-five townships. Wherever there are sewers in any of these places they discharge directly into the stream.

The Lehigh River is used as a source of filtered water supply for South and West Bethlehem, Fountain Hill, Northampton Heights and East Allentown.

The south side of Easton is also supplied partly from a well on the banks of the Lehigh River.

The Delaware River water shed above Easton and Phillipsburg contains a population of about one hundred and eighty thousand people distributed in one hundred and nineteen townships, thirty boroughs and villages.

Easton proper and a part of Palmer township is supplied by unfiltered Delaware River water taken from a crib located in the bed of the river opposite High street, College Hill.

Below Easton, beginning at Trenton, New Jersey, there are a number of places in Pennsylvania and New Jersey who derive their water supply from the Delaware River.

It has been unanimously determined that the interests of the public health require the discontinuance of the discharge of sewage into the Delaware River at Easton, as well as the discontinuance of the discharge of sewage into the river of any place in the river valley above said water supplies.

Easton Centre lies between the Lehigh River and Bushkill Creek. It includes both the business section and also a resident section. It is here that the sanitary sewers are found.

In one thousand eight hundred and eighty-nine the city began the construction of a combined sewer system. Since then not all of the sewers built have

been of this system. In the Northampton street basin, which comprises over one-third of the whole sewer district, the sanitary sewers are separate from the storm water drains.

About one-half of the city sewer system at present is on the combined plan. The combined sewers have three main outlets, two of which are into the Delaware River and one into the Lehigh River above the dam near the bridge.

The first outlet into the Delaware River is above the bridge and Northampton street. It is a three by four brick sewer. It passes up Front street and Bushkill street to Pearl street. At this point the combined sewer ends. But it receives the flow of the sanitary sewers of the Northampton street basin which flow is discharged into the combined sewer by an eighteen-inch pipe. Paralleling the sanitary sewers in the Northampton street basin are storm drains which have a separate outlet into Bushkill Creek at a point a short distance below the dam on said Creek near Locust street. This drain is an arched culvert and receives the flow of a five foot circular and a thirty-inch storm drain.

It is in this district that the proposed extensions both of the sanitary sewers and storm drains are to be largely made.

The separate system was built to prevent pollution of Bushkill Creek. That is why sanitary sewers were constructed in the Northampton street basin and the sewage discharged therefrom into the combined system emptying into the Delaware River. If the separate system had not been adopted the sewage would have been discharged into Bushkill Creek near Locust, and thence from this point to the river, a distance of over two-thirds of a mile, a nuisance would have existed.

It is proposed to extend or build sanitary sewers and storm drains.

The addition to the sanitary sewers comprise simple extensions of the existing sanitary system which has an eighteen-inch outlet into the combined system and hence into the Delaware River near the bridge. The proposed extensions will not include over fifty possible connections. While an approval of these extensions would be consistent from the standpoint of amount of pollution to be added to the river, it would not be consistent with the previous determination herein of the necessity for a diminution of the sewage discharge into the river. To accomplish this diminution, one of two things must be done, namely, the interception of the flow of the existing sewer outlets into the river during times of dry flow, and the overflowing into the rivers at said outlets of the surplus over and above what the intercepting sewer would be designed to carry during times of rain; or the absolute separation of all storm water conduits and sewage conduits.

By either plan the sewage would be conducted to some place and there be treated. However, the fluctuations in flow which would be bound to accompany the adoption of the former plan would carry with it two serious objections to the plan. First, it would not prevent sewage pollution during storms. Second, it would materially increase the first cost of the sewage disposal plant and the cost of operation.

The only objection to the latter plan of a separate conduit system for sewage for the entire town would be the expense. But this cost would not perhaps be prohibitive, taking all things into consideration. Fortunately, in Easton, the combined sewers can be paralleled by separate sewers at an estimated cost of one hundred thousand dollars. At this price, it would be better for the city, both from the standpoint of efficiency and economy to adopt the separate system. It is unanimously concluded therefore, that this policy should prevail at once, and that the city should proceed to re-design the sewer system in conformity with a plan for the collection of all of the sewage separate from storm water at some remote point, and its treatment there by an approved and modern process.

Permission is hereby given for the building of the following storm drains:

A five foot circular storm drain in Philadelphia street.

A four foot circular storm drain in Delaware street.

A four foot circular storm water drain from Delaware River to Lafayette street.

Storm water drains in Northampton, Ninth, Twelfth, Thirteenth, Spruce and Lehigh streets, all as shown on the plan accompanying petition and on the condition that nothing in the nature of sewage shall be discharged into them.

Permission is also granted for the building of the following sanitary sewers: Sanitary sewers in Northampton street, a sanitary sewer in Ninth street, Twelfth, Lehigh and Spruce streets, all as shown on plan accompanying application under the following conditions:

FIRST: That soon after the said sewers are built, a plan and profile of each shall be made and filed with the Commissioner of Health.

SECOND: That the sewage from these additions and from the sewers into which said additions are to discharge and from all of the sewers in the city may continue to discharge into the Delaware and Lehigh Rivers and the Bushkill Creek until January first, one thousand nine hundred and nine, when this permission for said discharge will end.

THIRD: That on or before July first, one thousand nine hundred and seven, plans for a new sanitary sewer system paralleling the present combined system,

and plans of an intercepting system of sanitary sewers for the collection of all of the sewage of all of the territory of the city shall be prepared and submitted to the Commissioner of Health for his approval.

FOURTH: That on or before July first, one thousand nine hundred and seven, plans of sewage disposal works for the treatment of the sewage of the city of Easton shall be prepared and submitted to the Commissioner of Health for his approval.

FIFTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., April 10th, 1906.

EAST BRADY, CLARION COUNTY.

This application was made by the borough of East Brady and is for permission to build a system of sewers and to discharge the sewage therefrom, untreated, into the Allegheny River within the limits of said borough.

It appears that East Brady is in the south-western corner of the county and is located on the east bank of the Allegheny River about four miles above the mouth of Red Bank Creek, which forms the southerly boundary of Clarion county. The population is estimated at thirteen hundred. In nineteen hundred, it was twelve hundred and thirty-three and in eighteen hundred and ninety, it was twelve hundred and twenty-eight. At present there is an attempt on the part of the Board of Trade to start an industrial boom. A woolen mill has been recently constructed, a glass factory plant is being projected, the buildings being ready for occupancy, and other enterprises are being talked of.

The citizens are largely employed in coal mining operations in the vicinity, or by the Pennsylvania Railroad Company.

The borough is ideally located for drainage, being laid out on the side and foot of a mountain which is nearly surrounded by the river which makes a sweep of nearly a circle at this point. The railroad is parallel to and about two hundred feet distant from the river. The intervening land is unoccupied, with the exception of a few houses at the bridge crossing the river at the foot of Bridge street in the upper part of the town and with the exception of the glass factory in the lower part of the town. The railroad bed is said to be higher than the elevation of the highest river water. The streets longitudinally through the town follow somewhat the contour of the mountain. The highways at right angles to the river have steep grades.

There are two small runs dividing the borough into natural drainage basins. Storm water reaches these runs in some instances through storm drains from which sewage is excluded, or the street water is taken across the railroad location to the river in drains provided for the purpose.

The existing sewers were built by private individuals. There are twelve such sewers and in every instance they discharge into the Allegheny River at the edge of the bank from five to ten feet above low water level. These outlets are distributed along the river for a distance of thirty-six hundred feet between Bridge street and Sixth street. This comprises the entire water front of the borough as built up at present. The smallest of these sewers is four inches in diameter and the largest is ten inches in diameter. The total length is approximately six thousand and fifty feet and the population is about two hundred. From information at hand, it appears that the sewers were built as cheaply as possible and are not suitable to incorporate in a sewer system for the borough.

The remainder of the population uses privies. There are about three hundred such structures in the borough. Slop water is generally disposed of on the surface of the yards. Twelve cesspools only are reported in existence. The occupied hillside is of glacial drift formation so that drainage from the privy vaults, which are mere holes dug in the gravel, readily seeps away.

The East Brady Water Works Company furnishes an unsatisfactory supply of public water for domestic purposes. The largest street mains are four inches only in diameter. There are no fire hydrants in the town.

The main supply is obtained from three springs on the mountain side. One of them at the head of Clarion street in the northern part of the borough delivers water directly into the mains. Two other springs in the southern part of the borough at the head of Third street extended, deliver water into a masonry reservoir holding about one hundred thousand gallons and from thence it is delivered to the town. During dry weather the spring supply is so materially reduced in volume that it is necessary to use an additional source. This auxiliary supply is derived from a driven well, located in the built up part of the borough at the foot of Ferry street at the railroad. It is said that this well is encased in rock, its depth is between one hundred and one hundred and thirty feet, and the water is drawn from the rock and is pumped by means of a gas engine directly into the mains. During the period that pumping is necessary, the water supplied to the consumers is impregnated with salt and is not suitable for drinking purposes.

There are a large number of individual wells in the borough, most of them are driven in gravel to a depth of from thirty to seventy-five feet below the surface. There are a few dug wells. During the greater portion of the year, or when the public supply is from the springs on the mountain side, there are about nine hundred consumers of the public water. But as soon as the salt water is introduced into the mains, many of the consumers resort to the use of private wells on the premises, or those of their neighbors.

It appears, therefore, that the public supply is unsatisfactory and that the private wells are not free from suspicion as dangerous.

It is proposed to build a system of sanitary sewers for the entire borough and admit roof water to the system. There are to be three outlets into the river.

The Water street district main is eight to fifteen inches in diameter and is planned to discharge into the river below low water mark at the foot of Ferry street near the mouth of the run there. The total length of sewers in this district is six thousand feet. The smallest sewer proposed is eight inches in diameter. This district is the upper one in the borough.

The Broad street sewer district main is from twelve to fifteen inches in diameter and is planned to discharge below low water mark into the river opposite the foot of Fourth street about two hundred feet above the southerly run in the borough. The total length of sewers in this district is thirty-two hundred and fifty feet and the territory drained thereby includes a narrow strip, either side of Broad street, and is occupied by residences and stores.

The High street district outlet main is ten to fifteen inches in diameter and is planned to discharge into the river below low water mark at the foot of Sixth street in the lower part of the town. The total length of sewers in this district is seventy-five hundred feet, all but seven hundred feet being eight inches in diameter.

The projected sewers will reach the entire population. The Water street district comprises four hundred, the Broad street three hundred and fifty, and the High street district five hundred and fifty people. The sewers are to be laid about eight feet deep, have grades which will insure self-cleansing velocities, and are provided with manholes at street intersections, but not at all changes in grade or at dead ends. The special urgency for the adoption of a comprehensive system of sewers is the paving of some of the public streets, provision for which has been made as soon as the sewers are laid in the streets. Also some of the private wells are thought to be polluted by sewage, and public sentiment has finally been educated to the point where a majority are willing to assume the expense of sewers to remove the menace.

At the present time the borough has no bonded indebtedness. The assessed valuation is three hundred and fifty thousand dollars, making the legal limitation of indebtedness twenty-four thousand and five hundred dollars.

The estimated cost of the proposed sewer system is twenty-one thousand and five hundred dollars, but the borough intends to issue bonds for one-third of this cost only, assessing the abutting property owners for the other two-thirds. Thus, money will be available with which to defray street paving and other expenses.

On lateral streets where the grade is four per cent. or over, six-inch pipe is amply large enough. Because the sewer districts, with populations in each of double the entire borough population at present, would not need a sewer larger than eight inches. It is entirely unnecessary to provide an outlet main larger in diameter than eight inches. The grades of the sewers are such that flush tanks may be omitted and the flushing done by and at manholes to be placed at sewer ends.

In contemplation of future treatment of the sewage, roof water should not be admitted. To do this would necessitate increasing the sizes of the sewers, besides requiring a prohibitive cost for sewage treatment works when such are needed.

Within sixty-one miles below East Brady, there is a population of six hundred thousand, using Allegheny River water for domestic purposes, the last municipality being the city of Pittsburg.

Ordinarily, the sewage may reach Pittsburg in a little over one day, but in much less time during high stages of the river. Therefore, the sewage should be treated at as early a date as possible. Plans for the interception of the sewage and its treatment should be submitted not later than a year after the completion of the sewer system. It is practicable to build an intercepting sewer along the railroad from the upper to the lower outlet proposed and to continue it about fifteen hundred feet further to a tract of land between the railroad and the river, where sewage disposal works could be located. Possibly the plant could be reached by gravity.

The estimated cost of a ten-inch intercepting sewer and disposal plant is twenty thousand dollars. Thus it is seen that the statutory limitation of indebtedness precludes the enforcement of treatment works at this time. Within five years the total valuation may have increased sufficiently to permit the adoption of disposal works.

It has been unanimously agreed that the interests of the public health will be subserved by granting permission to the borough of East Brady, and a permit is hereby and herein granted, to construct the proposed system of

sanitary sewers and to discharge the sewage therefrom into the Allegheny River under the following conditions:

FIRST: All storm and roof water shall be excluded from the system and manholes shall be constructed at street intersections and changes in line and grade and at the ends of the sewers. The summit manholes may take the place of flush tanks.

SECOND: At the close of each season's work, a plan and profile of the sewers built during the year, together with any other information in connection therewith, shall be filed with the Commissioner of Health.

THIRD: On completion of the sewer system the existing private sewers in the borough shall be abandoned and the properties served by them shall be connected with the new sewer system.

FOURTH: Accurate records of the number of buildings connected with the sewer system shall be kept and filed with the Commissioner of Health at the close of each year, and, therefore, it will be advisable for the borough authorities to appoint an officer whose duty it would be to superintend the sewer system and all matters pertaining thereto.

FIFTH: Where possible, house connections shall have a grade of at least four per cent. The size recommended is five inches in diameter.

SIXTH: If at any time, in the opinion of the Commissioner of Health, the sewer system, or its appurtenances are a nuisance or a menace to the public health, the borough shall adopt such remedial measures as the Commissioner of Health may prescribe or approve.

SEVENTH: This permit to discharge sewage into the Allegheny River shall cease on the first day of May, one thousand nine hundred and nine. If at that time the conditions of this permit have been complied with and the interests of the public health demand it, in the opinion of the Commissioner of Health, he may extend the time for said discharge into the said river.

EIGHTH: On or before the first day of May, one thousand nine hundred and nine, the borough shall prepare a plan for the interception of the sewage and its treatment and shall submit the same to the Commissioner of Health for his approval, who may modify, amend or approve the same and fix the time within which said work shall be constructed.

NINTH: No pathological material from any laboratory shall be permitted to enter the system. The proper authorities shall cause these wastes to be incinerated on the premises.

The attention of the borough authorities should be called to the fact that it is perfectly safe and a measure of economy to reduce the sizes of the sewers. If eight-inch sewers are provided at the grades now proposed in the following streets, namely, in the Water street district, First street, Bridge to Brady; Broad street, Brady, First to Water streets; in Broad street district, Broad street; in High street district, High street, and if six-inch sewers are laid at the proposed grades in all of the other streets in the system, a saving of twenty-five hundred dollars, or more, will be effected without sacrificing efficiency, either at the present time or for the future.

Harrisburg, Pa., October 11th, 1906.

EDGEWORTH, ALLEGHENY COUNTY.

This application was made by the borough of Edgeworth and is for permission to establish a new sewer system and to discharge the sewage therefrom, untreated, into the Ohio River within the limits of the borough.

It appears that Edgeworth borough is in Allegheny county, on the north bank of the Ohio River, about fourteen miles west of the city of Pittsburg. It was set off from the township of Leet in December, nineteen hundred and four, and is bounded on the north by Leet township, on the east by Sewickley borough, on the south by the Ohio River and on the west by Leetsdale borough. The area so incorporated extends along the river for about a mile and back of it on an average of three-quarters of a mile. At or near the western boundary is the Little Sewickley Creek, which rises in Franklin township, and flows in a generally south-easterly direction about seven miles to the river. In its valley and on the hills there are located many beautiful and extensive estates of rich men engaged in business in Pittsburg. The borough itself is purely residential and occupied by the dwellings of the resourceful class. The present population is about fourteen hundred. There are no indications that the future development of the municipality will exceed three thousand population unless more area be added, or dwellings of humbler pretensions be erected.

Paralleling the river and about six hundred feet therefrom is the road bed of the Pittsburg, Fort Wayne and Chicago Division of the Pennsylvania Railroad system. Between the tracks and the river there is a terrace which is partly submerged during river freshets. North of the tracks there is a second and higher terrace, never inundated and extending back a width of about two thousand feet. North of this again is a third terrace extending up into the hills.

It is on the second terrace that the larger part of the present population resides. A small natural water course passes through it easterly to the creek, beginning near Chestnut Road, where are located the abodes of the only large people residing in the borough. Sink and wash water and overflow

from privies get into this run and in summer render the stream offensive to the senses. As the course is through beautiful private estates, the pollution of the waters is particularly discomfoting to said proprietors. The abatement of this nuisance is one of the objects of the proposed sewer system.

There are about forty cesspools scattered throughout the borough and about sixty earth privies. The cesspools located in the upper terrace are said to be inferior for percolation purposes on account of the rocky nature of the substrata. However, in the middle terrace the deposits are of sand and gravel mixed with some clay and are generally suited, it appears, for percolation. There is no evidence at hand that the porous ground has become saturated with sewage, but this may be the case in the immediate vicinity of existing cesspools. Anyhow, the tax-payers are rich, can afford sewerage facilities and purpose to acquire the same.

There are no private wells in the borough. Everybody takes public water, which is furnished by the Edgeworth Water Company to the boroughs of Edgeworth and Leetsdale, and the township of Leet. The source of supply is the Ohio River. There is an intake crib constructed of wood, thirty feet long, four feet wide and four feet high, sunk about eight feet in the gravel bed of the river and located out in the stream about five hundred feet from the Edgeworth shore, at the foot of Chestnut street or road. An intake pipe leads from this crib to the pump house, from which the water is raised to two reservoirs on a hill in the northern part of the borough. The water is said to come from the shore and not from that flowing in the river. However this may be, the districts supplied by the Edgeworth Water Company have been reasonably free from typhoid fever. Notwithstanding this fact, so long as there is sewage pollution of the river water and said intake crib is used, the people who drink the water drawn from the crib are in constant danger of being poisoned.

The United States Government is now erecting a collapsible dam about six miles below Edgeworth in the river, to promote navigation therein. There is a similar dam now in operation about one and one-half miles above Edgeworth; and these are a part of the project to create a succession of pools in the Ohio River. Bason number four will raise the permanent head on the Edgeworth water works crib and increase the liability of river water passing through to the intake pipe in said crib.

There are at present three private sewer outlets emptying into the river at an elevation just above low water mark. Named in order down stream they are as follows: Hazel Lane, twelve inches in diameter; Chestnut Road, ten inches in diameter, and Edgeworth Road, eighteen inches in diameter.

The Hazel Lane sewer is about twelve hundred feet above the water works crib. The other two outlets are immediately below it.

There is a storm drain on the dividing line between the borough of Sewickley and Edgeworth in a highway known as Academy avenue, in which about five years ago a private drain was constructed to convey surface water discharging from both boroughs into this highway to the river. The drain was built by the borough of Sewickley, Leet township, and the heirs of John Way, of Fred Fleming and of J. Hobbs. It is now maintained by the borough of Sewickley and is said to receive storm water only.

The Hazel Lane outlet serves a system which comprises a total of eight thousand one hundred feet, the sewers ranging in size from nine to twenty-four inches in diameter and serving about one hundred and twenty-five people. They take both sewage and storm water and are owned and operated by the W. A. Way Estate.

The Chestnut Road sewer is owned by Standisch and Stowe. It serves a total length of sixty-five hundred feet of sewers ranging in size from six to ten inches in diameter. The sewers take roof water and the sewage from about one hundred and fifty people.

The Edgeworth Road sewer and the Beaver Road sewer emptying into it, comprise forty-two hundred feet of combined sewer, taking both storm water and sewage. Probably seventy-five people contribute to the flow. The Edgeworth sewer is owned by a Mr. Shannon.

Thus it appears that there are three and one-half miles of combined sewers owned by private individuals, removing the sewage of about three hundred and fifty people out of a total population of about fourteen hundred.

The municipal authorities represent that by reason of the steepness of the hills upon which the village in part is situated, heavy volumes of storm water at times cause great damage to private property because of lack of adequate underground drainage, and although the population is small and sewage therefrom correspondingly inconsiderable, nevertheless, because of constant annoyance from existing cesspools and privies, the borough has determined to construct an adequate system of combined sewers. It is further represented that the discharge of house sewage mingled with storm water into the Ohio River from the borough, will not now, and never can be, sufficient to make a material difference in the conditions of the Ohio River.

In following out these conclusions the borough proposes to build combined sewers and to incorporate the existing sewers into the system by purchase.

It is proposed to add six hundred and fifty feet of eight-inch sewer to the Hazel Lane system, and to provide surface water inlets at street intersections and at low points in highway grades.

Also that the interests of the public health demand that before the borough shall take over and use and maintain the Hazel Lane district system for the removal of both sewage and storm water which now gets into it and may get in through extensions and numerous proposed street inlets, the borough should prepare and submit to the Commissioner of Health for his approval a plan whereby as many of these existing sewers as may be found expedient, shall be incorporated into a strictly sanitary sewer system planned for the entire borough, and the others into an exclusive storm drain system.

Still further, it has been unanimously agreed that the interests of the public health demand that a permit be granted and it is herein granted to the borough of Edgeworth to build the proposed Church Lane sewers and the proposed Chestnut Road sewers, with their lateral connections, under the following conditions and stipulations:

FIRST: That these sewers shall be used exclusively for the removal of storm water, except such sewage as it may be deemed advisable to temporarily discharge therein from abutting estates whereon a nuisance exists, pending the construction of a sanitary sewer system in the borough into which said sewage is to ultimately be discharged.

SECOND: That during the time said sewers are used to convey sewage from existing sewers or private estates, the amount of storm water admitted to the sewers shall be regulated by the number of inlets to be provided so that said sewers shall not be surcharged and backflooded.

THIRD: Plans for a separate system of sewerage for the entire borough shall be prepared and submitted to the Commissioner of Health for his approval on or before the first of May, nineteen hundred and seven.

FOURTH: This permit to discharge sewage into the Ohio River shall cease on May first, nineteen hundred and seven, provided, however, that if the borough shall have submitted on or before said date the plans herein called for for a separate system of sewers, then this permit to discharge sewage into the river shall continue in force until October first, nineteen hundred and eight. If at that time all of the conditions of this permit have been complied with, and the interests of the public health demand it, the Commissioner of Health may extend the time for the discharge of sewage from said borough into the Ohio River.

FIFTH: No pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Special attention of the borough authorities should be called to the fact that the object to be attained by the adoption of a plan for a general sewerage system of the borough is to secure its construction, and the approval of any plan by the Commissioner of Health will be accompanied by stipulations that the building of sewers from time to time as required shall be in conformity with the general plan; therefore, the desirability of its adoption on or before May first, nineteen hundred and seven.

Harrisburg, Pa., November 13, 1906.

EMPORIUM, CAMERON COUNTY.

This application was made by the borough of Emporium and is for permission to extend the sewer system and to discharge the sewage therefrom, untreated, into the Driftwood branch of the Sinnemahoning Creek.

It appears that Emporium is the seat of government of Cameron county. The industries which support the town are the Pennsylvania Railroad, a blast furnace, tannery, powder mills and a flour mill. The borough is located on the north bank of the Driftwood branch of the Sinnemahoning Creek, is bounded on the east by Portage Creek and West Creek joins the Sinnemahoning from the south opposite the west end of the borough. West Creek furnishes a source of pumping supply to Emporium, but it is not used unless the other sources are insufficient. The water works are owned by the Emporium Water Company whose main supply is taken from an impounding reservoir on Salt Run in Portage township, which reservoir has a drainage area of three and six-tenths square miles, and from an impounding reservoir on Tower Run in Shipping township, a tributary of West Creek, which reservoir has a water shed of nine-tenths square miles. The pumping station is located on West Creek, a distance of about two and one-half miles above Emporium. The gravity supply from the reservoirs is said to be good, but the water pumped from West Creek is thought to be suspicious.

About eighty per cent. of the population of the borough take public water, the remainder use springs and individual wells, mostly located where there are no sewers. So far as is known there have been no epidemics of typhoid fever in the borough.

At present there are two outlets into the Sinnemahoning Creek. One is twelve inches in diameter and discharges into the creek at the foot of Broad street in the centre of the borough. This sewer extends up Broad street, which is the main thoroughfare, up from the creek, passing by the passenger station of the Philadelphia and Erie Railroad, the principal hotel of the town, and

the City Hall, to Fifth street. This is a public sewer, though unimportant. It serves possibly one hundred people. A new sewer on Second street is to be connected with the Broad street sewer according to the proposed plan. It in turn will not serve over a hundred people at present.

The other sewer outlet into the creek is three thousand feet below the Broad street sewer outlet but within the borough limits. It is fifteen inches in diameter, and at present is discharging about three-quarters of a million gallons daily of sewage, a large part of which is leakage from the ground, largely admitted through poorly constructed private sewers which are connected with the public sewers. The larger percentage of the leakage has been observed to be in the private sewer in the street, extending southeasterly from Sixth street to Locust street, where the private sewer connects with the fifteen-inch Locust street outlet.

All told, in the Locust street district, at present, there is a total length of sixteen thousand feet, or three miles of sewers, with which are connected the dwellings in which reside about fifteen hundred people.

The total population of Emporium is approximately twenty-six hundred, so that about eleven hundred individuals use privies. The total flow should not exceed two hundred thousand gallons daily—in fact, allowing the liberal estimate of one hundred gallons per capita daily, this would give a flow of one hundred and fifty thousand gallons at the Locust street outlet. But there is known to be seven hundred and fifty thousand gallons, so it is evident that the leakage amounts to in the neighborhood of six hundred thousand gallons daily, or two hundred thousand gallons per mile of sewer. In a well constructed separate system, the leakage may not exceed twenty thousand gallons per mile, so it is conspicuously apparent that the present sewers in Emporium need overhauling before sewage disposal works are constructed.

The sewers now receive roof water largely if not wholly through the old private sewers which aggregate a total length of one mile. Street water is unintentionally admitted through manholes where their covers happen to be low in the streets. These covers should be raised.

The borough council has appropriated seven thousand dollars for the extension of sewers. Plans thereof have been submitted. All of the extensions with one exception are in the Locust street district. This exception is fourteen hundred feet of eight-inch sewer in Second street to be connected with the Broad street outlet.

The proposed additions comprise fourteen thousand six hundred and thirty feet of sewers whose sizes range from eight to fifteen inches in diameter. When constructed the population contributing to the sewer system will have been increased from fifteen hundred to twenty-four hundred, or all but about two hundred of the entire population of the borough.

Roof or street water is to be admitted to the new sewers. Manholes are to be built at changes in line and grade. The sewers are to be flushed at the manholes by means of fire hose.

The plan contemplates the building of a twelve-inch and fifteen-inch sewer for the total length of two thousand four hundred and eighty feet in an alley between Fourth and Fifth streets. Probably not over seven hundred people will be connected with it, so that an eight-inch pipe on a grade of six inches in one hundred feet will be amply able to take several times more sewage than can be contributed to it by the abutting estates, and thereby effecting a saving in cost of twelve hundred to fifteen hundred dollars. Since the borough is poorly off financially the eight-inch sewer should be substituted for the fifteen-inch sewer.

It appears that the legal debt limit of the borough is twenty thousand five hundred dollars or thereabouts, and of this amount there is but nine thousand five hundred dollars available for general purposes.

So far as the Department is informed, the first place on the river below Emporium using the water for drinking purposes is Muncy, and this only in emergency. The first place which uses the water continuously for weeks at a time is Marysville, one hundred and eighty-six miles below. Therefore, these facts would not seem to warrant at this time denial to the borough of permission to extend its sewer system.

Probably the minimum flow of the creek at the Locust street outlet where the water shed is one hundred and fifty square miles in area, is in the neighborhood of six million gallons daily which is ample to dilute the sewage of the borough to a degree precluding a nuisance.

However, because the stream is not highly polluted, is not sufficient argument why its present purity should be diminished. The fact that it carries little sewage makes the stream near the standard to which many other rivers and streams of the State are to be brought through the efforts of the Department. The general interests of sanitation throughout the Commonwealth and the spirit of the Purity Water Bill of nineteen hundred and five dictate that sewage shall be kept out of streams so far as possible and practicable.

While the urgency for the treatment of Emporium sewage is not great, and in fact is impracticable at this time, yet the proposed sewer extensions are not in keeping with a plan which has for its object the ultimate collection of all of the sewage of the borough and its purification. It is perfectly feasible for

the borough to so change the design that all of the sewage shall be collected into the Locust street outlet. The cost of doing this is estimated in the vicinity of one thousand dollars, which is not prohibitive.

The next step for the borough to take might be the construction of a septic tank for the interception of the solid matters in the sewage. The sewage will have to be pumped to the tank unless by extending the sewer down the valley of the creek three thousand feet or more a gravity site may be found. Before this is done the leakage in the sewers should be reduced. Then the septic tank should be so located that the further and complete purification of the sewage at some future time may be accomplished by apparatus which may be installed advantageously in conjunction with the septic tank; hence the whole question of sewage disposal should be carefully studied before any part of the preliminary treatment of the sewage is definitely decided.

It has been unanimously agreed that the interests of the public health demand that the Commissioner of Health grant permission, which permission is hereby and herein granted, to the borough of Emporium to extend its sewer system and to discharge the sewage therefrom through the Locust street sewer-outlet into the Driftwood branch of the Sinnemahoning Creek, under the following conditions:

FIRST: That the Broad street sewer outlet be discontinued and that all of the sewage of the borough be delivered into the Locust street sewer district and be discharged therefrom through the Locust street outlet sewer into the creek under the conditions herein stipulated.

SECOND: A plan of the borough shall be prepared and submitted showing the streets and the boundaries of the borough, and on it indicated the existing sewers, their sizes, grades and man holes. And also properly indicated on it, the proposed sewers. At the close of each season's work, the borough shall prepare and submit to the Commissioner of Health a plan and profile of the sewers built during the year, together with any other information relating thereto which the Commissioner of Health may require.

THIRD: The sewer extension herein approved shall be provided with man-holes at street intersections and at every change in line and grade, and the house connections with said sewers shall be untrapped between the house and the street sewer. Monthly inspections of the sewers shall be made by an officer of the borough and a report thereof shall be submitted to the Commissioner of Health on blank forms to be suggested by the Commissioner if such report be required.

FOURTH: If, for any reason, the sewer system, or any part thereof, or the discharge of the sewage, in the opinion of the Commissioner of Health, has become a menace or injurious to public health, the borough shall adopt such remedial measures as the Commissioner of Health may suggest or approve.

FIFTH: This permit to discharge sewage into the creek shall cease on the first day of August, one thousand nine hundred and eight. If at that time the borough shall have complied with the conditions of this permit, then the Commissioner of Health may extend the time within which the sewage of the borough may continue to discharge into the creek.

SIXTH: On or before August first, one thousand nine hundred and eight, the borough shall prepare and submit to the Commissioner of Health for his approval a preliminary plan for the partial and also for the complete purification of the sewage before it shall be discharged into the waters of the State. The said Commissioner may modify, amend or approve said plans, and after due hearing of all parties interested, prescribe the time within which the whole, or any part, of such sewage purification shall be accomplished.

SEVENTH: No pathological material from any laboratory shall be permitted to be discharged into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

The attention of the borough officials should be called to the fact that it is entirely unnecessary to construct a twelve and fifteen-inch sewer in the alley between Fourth and Fifth streets. A sewer pipe eight inches in diameter will be amply sufficient in capacity to serve the territory tributary to this sewer. The money it is possible to save by choosing the eight-inch sewer in preference to the twelve and fifteen-inch sewer will probably defray the cost of the abandonment of the Broad street sewer outlet into the creek.

Harrisburg, Pa., September 14th, 1906.

EMSWORTH, ALLEGHENY COUNTY.

This application was made by the borough of Emsworth and is for permission to construct a sewer system and to discharge sewage therefrom, untreated, into the Ohio River, within the limits of the borough.

It appears that Emsworth is one of a series of residential boroughs or suburbs of Pittsburgh, which extend along the north bank of the Ohio River from Allegheny City to Leetsdale. It is one of the newest suburbs, was incorporated about ten years ago and is seven miles west of Pittsburgh. It is bounded on the west and north by Killbuck township, on the east by Ben Avon borough, and on the south by the Ohio River.

The municipal territory comprises about four hundred acres of very rugged hilly character. There are perhaps twenty-five acres of low ground all told in the borough up the valley of Lowry's Run. This stream comes from the north down through the eastern part of the borough and empties into the Ohio River near the Ben Avon line. Its valley is a narrow ravine with precipitous sides and it drains over three-fourths of the borough territory. The main line of the Pennsylvania Railroad—Pittsburg, Fort Wayne and Chicago Division—passes along the river front, there being barely room for the tracks between the river and the rocky bluffs.

A Civic Improvement Society has been organized among the citizens of the municipality in the artistic development as well as the general improvement of the borough, with the object of making Emsworth one of the most beautiful districts about Pittsburg. The topography is naturally adapted to landscape treatment, and undoubtedly the community will always be a residential one. At present about one-fifth of the area is built up, but all of the territory is practically laid out. The dwellings of the residents are well scattered and the population is estimated to be two thousand. It is expected that the population will be doubled in the immediate future, trebled in fifteen years or less, and that from twelve thousand to fifteen thousand people may ultimately occupy the present incorporated area.

About forty per cent. of the inhabitants are supplied with water by the Ohio Valley Water Company, a corporation which furnishes water to six boroughs and two townships in the district. The remaining inhabitants obtain their supply from dug and driven wells of which there are about two hundred and fifty in the borough. The rock formation here is sand stone and shale with a top covering of from five to twenty feet of clay and disintegrated shale forming an almost impervious layer. The wells are scattered over the borough. The dug wells are usually twenty feet deep and the driven wells from fifty to one hundred feet deep.

There are said to be twelve cesspools in the borough and about three hundred dry earth privies. Slop water and kitchen waste very largely reach street gutters and thence into Lowry's Run, because the slope of the ground is steep and considerable slop water is deposited on the surface. There is a general suspicion as to the quality of the water in the dug wells, and, therefore, they are being abandoned rapidly as sources of drinking water. Probably the water company will supply almost everybody in the borough in the near future.

The water supplied by the company is derived from shallow driven wells at the upper end of Nevill's Island in the Ohio River. These wells are sunk into the gravel bed of the river on the edge of the bank and are from seventy to one hundred feet deep. A series of tests show this water to be generally satisfactory from a chemical and bacteriological standpoint.

There is a Polish Catholic Institution, known as the Holy Family Orphan Asylum, located on a bluff at the river in the central part of the borough. There is a private sewer from this Institution which serves about one hundred people that empties into the river above low water mark. This is the only sewer in the borough.

There are two storm drains built by the municipal authorities for the purpose of draining Beaver avenue, to obviate excessive erosion of the gutters. The streets of the borough are unpaved at present and the scouring effect of surface water is generally noticeable. Paving of gutters and street surfaces is one of the needed public improvements.

A twenty-four-inch pipe extends from North avenue easterly in Beaver avenue about one thousand feet to Lowry's Run. Slop water from the street gutters is conveyed by this pipe to the Run. The other pipe is thirty inches in diameter and extends westerly in Beaver avenue from Huntingdon avenue to the Ohio River. Its length is about one thousand feet.

These drains are totally inadequate to remove the large volumes of water which come down from the precipitous hillsides during intense rainfalls.

In warm weather the decomposition of organic matter of household origin deposited in the street gutters creates a decided nuisance all over the borough, and large quantities of lime are used in an attempt to abate this nuisance. In consequence there is a prevailing sentiment in favor of the immediate construction of a sanitary sewerage system and for this purpose, at a special election held therefore, a bond issue of thirty-five thousand dollars was authorized to defray one-half of the cost of establishing a separate sewerage system. Whatever the sewers may cost over thirty-five thousand dollars will be assessed on abutting estates.

The application states that the borough is "desirous of constructing a sewer system for house drainage only within the limits of said borough." It is also represented that the authorities wish to build the main sewer and outlets at once, extending the lateral sewers from time to time as necessity may require.

The outlets shown on the plans submitted with the application are two in number, one at the east end of the borough near the mouth of Lowry's Run, and the other in the west end of the borough near the township line, both to empty into the river above the present but below the future low water mark.

The eastern outlet as shown on said plans is at the foot of Taylor avenue. As planned it is to be forty-two inches in diameter and will serve over three-

fourths of the municipal territory. Tributary to it will be seven and one-half miles of sewers of which five and one-half miles are to be eight inches in diameter, sixteen hundred and twenty feet, forty-two inches, seven hundred and fifty feet, thirty-six inches, three hundred and thirty feet, thirty inches, and fourteen hundred and ninety-five feet, twenty-four inches in diameter.

The western outlet, as shown on said plans, is twenty-four inches in diameter. It will serve about two miles of sewers, of which less than a mile will be eight inches in diameter. There are to be eleven hundred and twenty-five feet of twenty-four inch, three hundred and fifty feet of eighteen inch and ten hundred and fifty feet of fifteen inch pipe in the system.

The sizes of these proposed sewers appear to be unnecessarily large, and a very material reduction in size and cost therefore may be effected without the sacrifice of efficiency.

The United States Government is now constructing a dam across the Ohio River at Glenfield, at a point about two miles below Emsworth. This is one of a series of dams which the Federal Government is erecting to improve the navigation of the Ohio River. When the Glenfield structure is completed it will raise the low water level of the river between ten and twelve feet above what it now is, to insure a nine foot river stage during dry weather. The borough authorities have petitioned the Federal Government for permission to extend the sewer outlets into the river beyond the harbor line and no difficulty in obtaining said permit is apprehended.

Within twenty miles below Emsworth seven municipalities obtain their water supply from the Ohio River within the State of Pennsylvania. The aggregate population is over seventeen thousand and is on the rapid increase. The places are as follows: Glen Osborne, Sewickley, Edgeworth, Leetsdale, Ambridge and Beaver. Above Emsworth, within a distance of fifteen miles the sewage of five hundred thousand people, or over, is discharged into the river.

The pool formed by the Glenfield dam will be about four miles long and fifteen hundred feet wide, and will contain about three billion gallons of water. During dry weather the daily yield of the Ohio basin above Emsworth from its twenty thousand square miles water shed will be approximately one-third of the capacity of the said pool, so that the water therein may be displaced about once every three days. Possibly one-tenth of the daily flow of the river into this pool during dry periods may have been discharged from the sewers above Emsworth, so that the diluting capacity of the river flow is sufficient to prevent a nuisance but totally inadequate to effect a destruction of the poison which the sewers empty into the river. Therefore, the drawing of water from the river for drinking purposes is attended with great hazard to the lives of those dependent upon this water, unless the water is first filtered by the most efficient apparatus. Such apparatus to render the water safe should be capable of ready regulation and control, and even then, in case of a break-down, there is a public menace so long as sewage is present in the river water; but when this supply is drawn from the river by apparatus, such as a crib in the bed of the channel, incapable of regulation or control, the hazard is increased many fold. It is the bounden duty of the Commissioner of Health to conserve the interests of the public health by causing a diminution of these menaces. The discontinuance of the discharge of sewage from the municipalities above Emsworth into the river cannot be brought about immediately, but in pursuance of a general policy to ultimately achieve this object, no new sewerage system should be approved whose design contemplates a permanent outlet for untreated sewage into the river.

While Emsworth's supply of water now comes from driven wells, it is altogether probable that in the near future, if the territory supplied by the Ohio Valley Water Company increases in growth as rapidly as anticipated said company will be forced to draw directly from the river and filter the supply. This expedient may be brought about by economic and sanitary reasons. In fact the mutual interests of the municipalities in Allegheny county demand a restoration of the river water to a practical degree of purity. At any rate, pathogenic pollution should be kept out. In view of these facts the proposed sewers should be designed to economically fit into some plan for the ultimate keeping out of the river of the sewage and its treatment prior to being discharged into the stream.

Since it is impracticable to attempt to handle storm water in a sewage disposal plant, or any intercepting project, and since the proposed sewers for Emsworth are stated to be for house sewage only, it is clearly apparent that the sizes as originally planned, are entirely too large and if built would encourage the introduction of roof water and street drainage, which would complicate the future problem of the treatment of the sewage, and render it in the end much more expensive to the borough.

The application states that roof water is to be admitted into the sewers and that the total flow is estimated at seven hundred cubic feet per second. Based on a population of thirteen thousand people, it is not necessary to provide for more than three cubic feet per second, provided roof and storm water be excluded and nothing but sewage proper be admitted to the system. Since the grades are very steep in the borough six and eight inch pipes in the western district, and six, eight, ten and twelve inch pipes in the eastern district will be ample for the maximum development of the present municipal territory.

The construction of the sewer as now designed involves a total expenditure of about one hundred thousand dollars. The substitution of the small sizes will effect a saving of about fifty thousand dollars at present and more than this in the future when intercepting and purification works are required at the time that other municipalities in the valley must take up the question of sewage disposal works.

Most of this difference in cost will have been expended on the sewers which the borough purposes to build this fall. About forty thousand dollars are necessary to carry out the said proposed work, whereas about ten thousand dollars would suffice were the separate system to be strictly followed.

It would be better for the borough to revise its plans and to keep the roof and storm water conduits separate from these sewer pipes. The storm drains should have their outlets into the nearby natural water course, but the sewers might be permitted to temporarily empty into the river at the points now

There is no available land in the borough adapted for sewage treatment works. All sites that might have been available at one time have been preempted for residences. There is no tract secluded enough to warrant the location upon it of a sanitary plant.

The assessed valuation of Emsworth is about eight hundred thousand dollars permitting a total debt of fifty-six thousand dollars, of which fourteen thousand five hundred dollars have already been bonded for street improvements. Deducting thirty-five thousand dollars for the proposed sewerage facilities leaves an unexpended balance of six thousand five hundred dollars only. Possibly within a year the valuation may be nearly double so that the municipality in the near future will be in a better position to take up the question of sewage treatment works.

In view of these facts, the Commissioner of Health, on the twenty-second day of October, one thousand nine hundred and six, gave a hearing to the representatives of the borough, and on the same day communicated the results of the hearing to the president and members of council in the following letter:

"Gentlemen:—In conformity with my request this day, Mr. A. C. Rapp, Chairman of the Sewer Committee, and Mr. A. D. Irwin, Engineer, representing your borough, appeared before me in reference to the application of your borough for permission to build a system of sewers and discharge the sewage therefrom through two outlets into the Ohio River.

"Your plans do not seem to me to be well conceived, and I wish to have a more thorough understanding with you about the matter than could be had by correspondence. The object of this letter is to concisely review the points brought out at to-day's conference.

"Your plans are designed for a sanitary sewer system, the sewers of which are to receive roof water. Consequently, the sizes have to be larger than is necessary for the conveyance of sewage only, yet much smaller than necessary for the removal of roof water and water from the streets and yards of the borough. Such a policy is not good engineering. Either the sewers should be large enough to take off all surface water that may be contributed to them from the roofs, yards and streets, or they should exclude everything but house sewage. As now planned, in the future drains must be laid in the same streets where you purpose to build the sewers now before me for approval, these future drains to take off surface water. Hence it is clearly extravagant for you to burden the municipality and the abutting estates who must be assessed the cost of lateral sewers with the cost of sewerage and partial drainage now. Besides this combined system will in the near future entail an almost prohibitive cost when your municipality in common with others along the Ohio River is required to discontinue the discharge of sewage into the river until after it shall have been treated. It is common knowledge that the Ohio River is an open sewer and that its pollution has been increasing. Since its waters are now used as sources of public supply, and this use must be increased with the growth of the municipalities in the valley, the time has arrived when the interests of the public health demand a diminution of the pollution of these supplies by sewage, and I am charged by law with the working out of a plan which shall ultimately take out the sewage from the Ohio River. It would be inconsistent in conformity with this law for the State to give its sanction to a plan diametrically opposed to this principal, and, therefore, it becomes my duty to point out to you wherein your plans fall short of this object. Since Emsworth sewage must sometime be treated, the sewers you build now should be a part of a plan that shall efficiently and economically admit of the collection of the sewage of the entire borough and its treatment. The economies of the problem dictate that surface and roof water shall be excluded from the sewer. It appears that it is necessary that your borough should have sewers at once. The removal of storm water is more in the line of a luxury and can be postponed until your finances admit of storm water drains. By adopting the small pipe system for house sewage removal, you can build sewers all over your borough now and bring the benefit of sewerage to every property owner, while you could not do this under your present financial ability if the combined system were adopted. Besides, the small pipe system will economi-

cally fit into the plan for the ultimate interception of the sewage and its treatment, while the treatment of mingled sewage and storm water will always be prohibitive in cost.

"I have this day recommended to your representatives that you modify your sewer plans and provide separate conduits for house sewage only and that whenever you build storm drains they be built to empty into the nearest water courses. If you will make these changes in the plan, I think it will effect a saving of about one-half of what you contemplate expending at this time, and I will recommend to the Governor and Attorney General that you be given permission to discharge the sewage into the river for a definite period, and to the date when other municipalities in the valley shall be required to take out their sewage from the river.

"Yours very truly,
SAMUEL G. DIXON."

In compliance with these suggestions the borough engineer submitted revised plans, the western district to discharge into the river by gravity, but the outlet main from the eastern district to discharge into a collecting reservoir to be located on the bank of Lowry's Run, near Atlantic avenue, from whence the sewage is to be raised by duplicate centrifugal pumps through a six inch discharge main into the Ohio River opposite the foot of Taylor avenue. Corresponding reductions in sizes of the lateral sewers are made throughout the system, and all roof and storm water is to be eliminated from the sewers, separate conduits to be provided from time to time for the removal of surface water.

In view of these considerations it has been unanimously agreed that the interests of the public health demand that a permit be granted and it is herein granted to the borough of Emsworth to build the proposed sewer system as modified under the following conditions and stipulations:

FIRST: That these sewers shall be used exclusively for the removal of sewage and all roof and storm water shall be kept out of the system.

SECOND: That detail plans and specifications of the proposed storage reservoir, pumping well, station, pumps and force main be submitted to the Commissioner of Health for his approval, before the same shall have been constructed, and that at the end of each season's work plans and profiles of the sewers built during the year shall be prepared and filed with the Commissioner of Health, together with such other information in connection therewith as the Commissioner of Health may require.

THIRD: Manholes shall be built on the sewers at all changes in line and grade, and at street intersections.

FOURTH: If for any reasons the sewers, or any part thereof, in the opinion of the Commissioner of Health, have become a nuisance or menace then the borough authorities shall adopt such remedial measures as the Commissioner of Health may prescribe or approve.

FIFTH: This permit to discharge sewage into the Ohio River shall cease on October first, one thousand nine hundred and eight. If at that time all the conditions of this permit have been complied with, and the interests of the public health demand it, in the opinion of the Commissioner of Health, the said Commissioner may extend the time for the discharge of sewage from said sewers into the Ohio River.

SIXTH: No pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., November 15th, 1906.

GAYSPORT, BLAIR COUNTY.

This application was made by the borough of Gaysport and is for permission to construct a combined sewer and to discharge sewage therefrom into the Juniata River within the limits of Blair Township.

It appears that Gaysport is a small borough on the southwest side of Hollidaysburg, the Frankstown Branch of the Juniata River separating the municipalities, or rather the Beaver Dam Creek Branch of the said river, which is tributary to the Frankstown Branch.

Its incorporated territory covers but a little area and is surrounded on three sides by Blair Township. The creek forms the northerly and easterly boundary of the borough, and the Pennsylvania Railroad crosses the creek from Hollidaysburg and passes through the northern part of the borough, being the dividing line between sewer districts one and two. Sewer district one is north of the railroad to the creek. There are perhaps fifteen acres in this district and about twelve houses therein have private sewers to the creek.

Sewer district number two comprises all of the municipal territory south of the railroad. The streets in this district parallel the river and railroad or run at right angles to them. Bedford Street follows the Beaver Dam Creek to the railroad and thence by the railroad to the borough limits. Beaver Street

is next west and parallels Bedford Street. It is the lowest thoroughfare in Gaysport and through it on one side thereof on the date of said application there was an open ditch or natural water course into which two private sewers serving six buildings discharged, cellar drains from houses on Beaver Street empty, and rubbish and filth of various kinds is deposited, rendering the channel foul in summer and offensive to the people residing on Beaver Street or in the vicinity thereof.

In this district, which comprises possibly eighty-five acres, there is a population of approximately eight hundred people. Privies abound, but cesspools are rare. Slop water is discharged onto the surface of the ground or into the nearby water course. There are two private wells only reported in the borough. The town owns its own system of water works and the citizens have very generally availed themselves of the supply. The water is taken from a mountain stream called Dry Gap Run, across which a dam has been built at a point of sufficient elevation to supply the water by gravity to the town. The water shed of four hundred acres is said to be uninhabited and the waters therefrom are satisfactory to the consumers. The necessity for sewerage is the insanitary condition of the Beaver Street Run.

The sum of five thousand five hundred dollars has been voted to build a flood sewer in Beaver Street, from Lowe Street, near the upper end of the borough through the entire length of Beaver Street and across private property in the lower end of the borough to the creek, a total distance of three thousand three hundred feet, of which sixteen hundred feet is to be forty-four inches in diameter and the remainder thirty-six inches in diameter. The sewer is to be of concrete construction and have a fall of about three inches in one hundred feet. It is expected that twenty connections will be made with it during this year. The buildings abutting the street which now drain their cellars into the stream will use these pipes to convey sewage. The two private sewers on lateral streets serving six dwellings will be connected with the flood sewer. And it is intended to permit general connections of public and private sewers with said flood drain.

The abandonment of an open ditch in Beaver Street for a tight culvert of concrete construction is a public improvement to be commended. The admission of sewage into this flood drain, however, should be permitted only, if at all, by sanitary sewers from which all storm water is excluded in order that it may not be impracticable in the future, when the time shall have arrived, to cause the discontinuance of the discharge of sewage into said flood sewer and require it to be intercepted by sanitary sewer in Beaver Street, in conformity with a system which shall contemplate the collection of all of the sewage of the borough and its conveyance to some common point for treatment before it shall be discharged into any of the waters of the State.

Gaysport has a present population of about nine hundred. It has been growing slowly in the past. It may grow much faster in the future. The borough's financial resources are limited to the extent which demands prudent expenditures. It is not necessary, or economical, to convey surface water underground from the streets in the borough to the creek or flood sewer. It can be satisfactorily disposed of by conveyance in street gutters to these water courses, as is done in many municipalities of considerable size. The lateral sewer connection with the flood drain should be by sanitary sewers of small diameter, so planned as to be a part of a comprehensive system of sanitary sewerage for the entire borough.

The Commissioner of Health recently issued a permit to the borough of Hollidaysburg to discharge the sewage from its sewer system into the waters of the State until July first, one thousand nine hundred and nine, provided sewer extensions be made in conformity with a plan whose object shall be the efficient and economical interception of the sewage of the borough and its ultimate conveyance to a point where the sewage shall be treated before the liquid is discharged into the stream. Said plans are to be submitted on or before January first, one thousand nine hundred seven. It seems fitting that similar conditions should be imposed in Gaysport.

It has been unanimously agreed that the interests of the public health will be best conserved by granting a permit, which permit is herein granted to the borough of Gaysport to build the flood sewer and to discharge sewage therein and therefrom in compliance with the application, under the following conditions and stipulations:

FIRST: That on completion of said flood sewer the borough shall prepare a detailed plan and profile of said flood sewer and its appurtenances and connections and file the same with the Commissioner of Health.

SECOND: No sewers shall be connected with said flood sewer unless they are of the sanitary sewer type from which all storm water is excluded.

THIRD: That on or before January first, one thousand nine hundred and seven, the borough shall prepare a plan of sanitary sewerage for the entire borough and submit the same to the Commissioner of Health for approval and

future sewer extensions shall be made in conformity with this plan as modified, amended or approved by the Commissioner of Health.

FOURTH: That at the end of each season's work the borough shall submit plans of the sewers built during the year to the Commissioner of Health, together with such other information as he may require.

FIFTH: This permit for the discharge of sewage into the waters of the State shall cease on July first, one thousand nine hundred and nine. Provided the conditions hereinbefore mentioned have been complied with, the Commissioner of Health may extend the time in which the borough may discharge its sewage untreated into the waters of the State.

SIXTH: No pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., October 11th, 1906.

GREENVILLE, MERCER COUNTY.

This application was made by the borough of Greenville and is for permission to extend the sewer system and to build sewers in the West End district, and to discharge sewage therefrom into the Shenango River outside of the limits of the borough and in the township of West Salem and the township of Hempfield, said county.

It appears that Greenville is a borough of about sixty-five hundred population and next to Sharon is the principal place in Mercer County. It is located in the centre of a farming district, and it is well supplied with industries, the principal ones being the Bessemer Railroad Shops, the United States Steel Tube Mill and the Carnegie Rolling Mills. The Shenango River passes through the municipality taking a southerly course and dividing the borough into an east and west side.

The west side is the old portion of Greenville and it is almost wholly a residential district. The east side is the business section. It contains the larger area and two-thirds of the borough population. It is bounded on the north, referring now to the built-up part of the business section, by Little Shenango Creek, whose head waters are in Crawford County. Topographically, the two municipal districts strikingly differ. The east side is comparatively flat and the west side is decidedly hilly.

There is a public water supply owned by the Greenville Water Company. The supply is said to come from springs and surface water which is unpolluted. The pumping station is located on the banks of Little Shenango Creek and there is said to be an emergency intake to the creek, the pipes are well distributed in the streets of the entire borough, and if there is sewage pollution of the Little Shenango Creek, the water consumers are in danger so long as the emergency intake is in existence, provided raw creek water may be introduced thereby into the water pipe system. On the other hand, because cesspools and privies abound throughout the borough, it would be strange if the use of individual well water were not a menace also.

There are public sewers in the east side. They were built ten years or more ago, and are on the separate plan. At summit ends there are roofs connected with the sewers for flushing purposes. Otherwise, storm water is said to be excluded from the system. The sewage is intercepted and conveyed below the borough and discharged into the Shenango River by two outfall sewers, one being eighteen inches and the other twenty inches in diameter, and both discharging at a point outside of the borough limits. The eighteen inch is at the borough line where during the summer time a nuisance exists by reason of odors emanating from the solids deposited by the sewer in the channel near its mouth. The twenty inch sewers empties into the river about one half of a mile farther down the stream. It is below the Erie Railroad in a secluded place where there is ample low meadow land suitable for the erection of a sewage disposal plant, provided the sewage were pumped into it.

Twenty-two miles below Greenville, the borough of Sharpsville takes water for drinking purposes from a well on the bank of the river. There is said to be no connection between the river and well water. Four miles further down is the borough of Sharon, and South Sharon adjoins it. Both of these places use filtered Shenango river water for drinking purposes. There are emergency intakes into the river. Forty-nine miles below Greenville the city of New Castle takes the river water for its supply, and filters it before furnishing the water to the consumer.

All along the banks of the river there are large and thriving industries, whose wastes add to the pollution of the stream.

In the centre of Greenville there is a dam across the river, which back-floods the water a very considerable distance up stream, both in the river and in the creek. The Greenville Coal and Ice Company is said to take the

borough's ice supply from out of this slack water pool. It is said to be above all pollution. The borough should see to it that all sewage is prevented from going into the stream above said ice supply.

The west side has no public sewer. Wash water and kitchen slops are discharged almost universally here into the street gutters, in which the water stands in pools and soaks into the ground. In warm weather the odors therefrom are very strong and disagreeable. Privies are found at every dwelling. There is said to be more typhoid fever in this district than elsewhere in the borough, and the cause is connected with the insanitary condition in the district, in the minds of those who are active in promoting the proposed sewers. Sentiment in the district is favorable to sewers.

It is proposed to build a system of sanitary sewers for the west side and to discharge the sewage through a twenty inch outlet sewer into the Shenango River below the borough limits, in the township of West Salem, at a point about twelve hundred feet above the existing twenty inch sewer outlet into the river, and about the same distance below the eighteen-inch sewer outlet, the last two being in Hempfield Township, since the river is the boundary between the said two townships.

The present population of the district is twenty-one hundred and forty-six. Estimated from the past growth and the rate of growth of similar towns, the ultimate population planned for is forty-five hundred. The sewers are based on this population and a per capita consumption of eighty gallons.

The sizes will range from eight inches to twenty inches in diameter, of which the eight inch will comprise about eighty per cent. About all of the large sewers will be built at once and all but forty per cent. of the eight inch pipe. It is expected that three hundred and fifty connections will be made with the sewers at once. This is a case where the discharge of sewage into a stream is not permissible, because the water therein is used for drinking purposes below. The area of the water shed of the Shenango River above Greenville is three hundred and eleven square miles. The ground is generally rolling. There are no good records of the dry weather yield of this area. At New Castle, during a dry time in nineteen hundred and four, the New Castle Water Company drew from the Shenango River nearly half of the flow of the river, which at that time was ten million gallons daily. This gives an idea of the rate of discharge of the river at Greenville.

Fifty per cent. of the entire population of the borough of Greenville do not use the sewers. During extreme dry weather the ratio of volume of sewage now discharged into the river to the volume of flow of the river is from one to ten to one to fifteen. These ratios will be cut one-half, if the proposed additions are made to the sewer system. The conclusions are that sewer extensions in Greenville will materially increase the pollution of the Shenango River and be a menace to human lives. On the other hand, it is in the interests of the public health of Greenville that sewers should be extended therein, and that precaution should be taken in the use for drinking purposes of water taken from wells in proximity to cesspools and privies.

It has been unanimously determined and agreed that the sewage now being discharged from the sewer system into the Shenango River should be purified. However, since the law was not created to prevent the discharge of sewage from a public sewer system in operation and discharging sewage into a stream at the time of the passage of the act, from continuing to be so discharged, but was created to prevent the discharge of sewage from a sewer system which shall be extended subsequent to the enactment of the law, the borough of Greenville must not extend the sewers on the east side without application to and approval by the Commissioner of Health. When any such extension is made, the question of the treatment of the sewage will have to be taken up.

It has also been unanimously agreed that the interests of the public health demand that a permit be granted to the borough of Greenville, and it hereby and herein granted for the introduction of a system of sanitary sewers in the west side, under the following stipulations and conditions:

FIRST: That before the West Side terminal sewer is built, the borough shall prepare and submit to the State Commissioner of Health for approval a preliminary plan for the interception of all of the sewage of the West Side and its conveyance to some point for treatment, and this plan as approved, modified and amended by the Commissioner of Health shall be conformed to in the building of the West Side terminal sewer.

SECOND: The sewage from the proposed sewer in the West Side district may be temporarily emptied into the Shenango River; but this permit to so discharge the sewage shall cease on the first day of May, nineteen hundred and nine.

THIRD: Detail plans for the sewage treatment works for the sewage of the West Side of the borough shall be prepared and submitted by said borough to the Commissioner of Health on or before the construction of the West Side terminal sewer. These works shall be so designed that additions may be made

more water than the proposed storm sewer can remove. There will be floods from the hillsides whose removal would require a conduit several times greater in capacity than the proposed sewer. Therefore if a permit to discharge sewage into the proposed sewer were granted, this sewage would be back flooded at times and create a nuisance.

Besides this objection there is even a greater one to the discharge of sewage into the proposed sewer. The outlet of it as proposed at the foot of Pine street will be about six hundred feet above the water works intake into the river. It is evident and therefore it has been unanimously agreed that the interests of the public health do not demand the discharge of sewage into the river at the point above and within six hundred feet of the water works. It is also evident and has been unanimously agreed that the interests of the public health do demand that the sewage discharged into the river from the private sewers in the borough which are above the water works intake shall be discontinued.

The water works company should be warned to notify the public in the boroughs of Hallstead and Great Bend whenever raw river water is introduced into the water works system. This use should be reduced to the minimum, and be under the regulation and supervision of the State Health Commissioner and the local Board of Health. If frequent use is to be made of the water, then it should be first filtered before being used as a public supply.

Because the borough is financially unable to build a separate system of sewers and disposal works, and because it does not appear that the interests of the public health demand that more sewage be discharged into the Susquehanna River, above the water works intake, but less sewage, and that all sewage so discharged within the borough be discontinued, and because a public nuisance exists by reason of the ponding up of surface water on the streets and in the cellars and yards of the borough, near Pine street, therefore, it has been unanimously agreed that the Commissioner of Health deny permission for the construction of the sewer in Pine street as proposed, but that he suggest as a remedy for the evil existing there by reason of the flooding of the premises, that the borough build a drain for the removal of storm water only. Further it has been unanimously agreed that as soon as it appears expedient to the Borough Council, a comprehensive plan for a system of sewers of small size to receive sewage only be designed and submitted by the borough to the Commissioner of Health for his approval. The borough should be expressly prohibited under penalty of admitting any sewage whatsoever into any drain which it may build in Pine street, or any other street or location in the borough.

Harrisburg, Pa., September seventeenth, 1906.

HARRISBURG, DAUPHIN COUNTY.

This application was made by the City of Harrisburg and is for permission to extend the sewer system and to discharge the sewage therefrom, untreated, into Mish's Run within the limits of the city.

It appears that Market Street is the principal thoroughfare in the city. It extends at right angles from the Susquehanna River through the Square, commercial district, and by the railroad stations and terminates on the hill at the easterly city line where the Reservoir Park begins.

All along its line and the line of Chestnut street next south and paralleling it, lands are thickly built upon, and the estates are drained by sewers which empty sewage and storm water into either Paxton Creek or the Susquehanna River.

Paxton Creek receives the run-off of all the territory on the hillside to which territory this discussion is confined.

At or near the city line the Market street sewer is twenty-four inches in diameter, and the Chestnut street sewer is eighteen inches in diameter. Here they end. Outside the city limits, there are perhaps eighty acres of Park and rural land which drain into these sewers. In times of intense downpours of long duration the said Market and Chestnut street drains are unable to carry off the yield of the said eighty acres and remove at the same time the surface water and sewage from the streets, yards and territory tributary to them within the city limits. In consequence said sewers are filled to overflowing, cellars are backflooded and the residents along the sewers are put to discomfort and injury.

It also appears that to the south of Chestnut street the land drains to a tributary of Paxton Creek called Mish's Run. This stream rises in Swatara township about three-quarters of a mile east of the city line, comes down through undeveloped property to Eighteenth street in Harrisburg from whence to Paxton Creek, a distance of about three-quarters of a mile, its course is through urban and suburban territory. Through parts of its length

the fall of the stream is rapid, and nowhere is the flow sluggish except the last five hundred feet of its length at Paxton Creek. Here from the eastern side of Cameron street to said creek, the course is through a circular conduit five feet in diameter and covered over. The hillsides begin east of Cameron street and from this point upward the stream is an open natural channel for a distance of about two thousand two hundred feet to the Fifteenth street sewer which is fifty-four inches in diameter. From this point Mish's Run disappears from view until Eighteenth and Holly street is reached near the city line where a five foot concrete drain ends and the open channel appears.

The abandonment of the open channel of Mish's Run from Rudy street to Fifteenth street and the substitution therefor of underground conduits has been done partly by the city of Harrisburg and partly by private enterprise, in anticipation of the rapid development of this section of the city which seems to be assured. Eighteenth street parallels the easterly city line and is distant therefrom about one hundred and fifty feet.

In one thousand nine hundred and five the city built combined sewers in a small district south of Chestnut street and west of Eighteenth street with a thirty-six inch outlet thereof in Eighteenth street from Holly to the five foot drain at Rudy street. The principal object of this work was to lay down the sewer in Seventeenth street prior to the asphaltting of the street which has since been done. It is estimated that about one hundred people only reside in this district and contributes to the sewers.

It is now proposed to extend the sewer in Eighteenth street from its present terminus at Holly street to the center of Park street which is north of Market street, a total distance of one thousand seven hundred and fifty-six feet to intercept storm water which may now or in the future reach Eighteenth street from the east and also to take sewage limited to estates abutting on Eighteenth street.

Mish's Run is already seriously polluted by sewage. The said Fifteenth street sewer serves suburban territory of perhaps fifty acres containing a population of at least one thousand two hundred individuals at this time, all of which may be estimated as contributing to the pollution of Mish's Run. Above this point possibly one hundred people may contribute sewage at Seventeenth and Berryhill streets and probably one hundred people at Holly and Eighteenth streets. Below Fifteenth street and immediately south of the Philadelphia and Reading Railroad, Hamilton Run which drains three hundred acres mostly in Swatara township, including the village of Eastmere, a growing suburb of Harrisburg, empties a strongly sewage polluted water into Mish's Run so that from Fifteenth street down to Cameron street Mish's Run is an open sewer, a nuisance and a menace to public health. All of this filth now goes into Paxton Creek. Unless some prohibition is made and enforced, the evil will rapidly assume much greater proportion.

By ordinance approved by the Mayor, June seventh, one thousand nine hundred and six, the Board of Public Works were authorized and directed to take charge of the construction of a sewer for general drainage purposes in Eighteenth street as proposed. Also to build a sewer from Paxton Creek up the valley of Mish's Run to the end of the existing public sewer at the west side of Seventeenth street. The ordinance provides that this main sewer or culvert shall be for general drainage purposes.

The creation of a loan of the city in the sum of four hundred thousand dollars, of which one hundred thousand dollars may be expended for extensions and improvements of the sewerage system, was authorized at a public election held for the purpose in one thousand nine hundred and five, and councils have appropriated out of the loan the sum of fifty-five thousand dollars, for the payment of the costs and expenses of constructing the said Mish's Run sewer and the said Eighteenth street sewer.

It appears that the interests of the public health demand that the flooding of the cellars by the surcharging of the Walnut and Chestnut street sewers shall cease. The plans proposed for the Eighteenth street sewer will accomplish this result, and to this extent they should be approved. But it nowhere appears that the interests of the public health demand that more sewage shall be discharged into Mish's Run or any tributary thereof, but to the contrary, there should be diminution of such discharge and an abatement of the nuisance therein existing and this as speedily as possible.

It does not appear that the appropriation of fifty-five thousand dollars now made will be sufficient to enter private property and improve the natural water courses and substitute masonry structures therefor to abate the existing nuisances in the drainage area tributary to Mish's Run within the limits of the city, but fifty-five thousand dollars is an ample amount to defray the cost of building conduits for the removal of sewage only.

Upon unanimous agreement that the interests of the public health demand that permission be given, it is hereby and herein given to the city of Harrisburg to build the proposed storm water drain in Eighteenth street from Holly to Park street under the following conditions and stipulations:

rated from the storm water, sewage will discharge during storms into Brush Run, even if sewage disposal works were built, unless the storm sewer were extended down the run all the way to the river; but this would involve a much larger expenditure than the borough is able to incur. And disposal works to treat storm water and sewage would be prohibitive in cost also. Therefore, the borough has inadvisedly proceeded thus far in installing a combined sewer system for the Third District.

It is not too late to reconsider the plan, and in the interest of the public health, efficiency and economy, it is unanimously agreed that a separate plan of sewage which shall convey sewage only from the Third District down the valley of Brush Run to the river shall be prepared forthwith and adopted by the borough.

It appears that in Districts One and Two which may number ten thousand population in fifteen years about half the population is at present connected with the sewer; when all of these, together with prospective population are connected, the Beaver Dam Branch may be polluted to the extent of creating a nuisance at times, so it behooves the authorities to anticipate this event by extending the sewers in said districts in conformity with a plan best adapted to the sanitary disposal of the sewage therefrom. This plan should contemplate the treatment of the sewage, and hence provide a practical way of separating the sewage from the storm water. It would be entirely impracticable for the borough to treat the storm water. A separate system may work out to be the cheapest method. At any rate, an expert should be employed to devise an efficient plan and the borough should then adopt it and build in accordance therewith from year to year.

It has therefore been unanimously agreed that the interests of the public health demand that a permit be granted and it is hereby and herein granted to the borough of Hollidaysburg to build sewers in Sewer District Number Three and to extend the sewers in District Number One and Number Two and to discharge the sewage therefrom into the waters of the State under the following conditions:

FIRST: That separate sewers for the removal of sewage only shall be provided in the Third District, and the outlet sewer therefrom, which shall not be over twelve inches in diameter, shall be extended down the valley of Brush Run to Frankstown Branch of the Juniata River, where the sewage from said sewer system may be discharged until July first, one thousand nine hundred and nine.

SECOND: That the borough may extend its sewers in Districts One and Two and discharge the sewage therefrom into the waters of the State until July first, one thousand nine hundred and nine, provided said extensions are made in conformity with a plan whose object shall be the efficient and economical interception of the sewage of the entire borough and its ultimate conveyance to one or more common points where the sewage shall be treated before the liquid is discharged into the stream. Such a plan shall be prepared by the borough at once and submitted to the Commissioner of Health for approval, and he may modify, amend or approve the plans and fix conditions under which the borough shall dispose of its sewage. Such plans shall be submitted on or before January first, one thousand nine hundred and seven.

THIRD: Provided the conditions hereinbefore mentioned are complied with, the Commissioner of Health may on July first, one thousand nine hundred and nine, extend the time during which the borough may discharge its sewage into the waters of the State in an untreated condition.

FOURTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., July 3rd, 1906.

KINGSTON, LUZERNE COUNTY.

This application was made by the borough of Kingston and is for permission to extend the public sewer system and to discharge sewage therefrom into Toby Creek within the limits of the borough of Edwardsville.

It appears that Kingston borough is on the north and opposite side of the north branch of the Susquehanna River from the city of Wilkes-Barre. It is one of a cluster of boroughs which in appearance are a part of one community, sometimes spoken of as "North Wilkes-Barre." There has been agitation of the project to annex this territory to the city of Wilkes-Barre, but the most favorably received idea is that these boroughs shall be incorporated into a city by itself. The territory now is supplied with water by the Springbrook Water Company which derives its source in the Moosic Mountains some twenty miles distant. The water is said to be pure. The borough of Kingston has a sewer system and so has its neighbor, the borough of Edwardsville. This latter

borough borders on the Susquehanna River. Toby Creek bisects it and passes by or through Kingston borough, Kingston township, Dorranceton borough, Luzerne borough and Courtdale, none of which places have sewers except the two first named. The need of sewers, however, is felt, and the practicability of a trunk sewer in the valley of Toby Creek to serve each place above Kingston and Edwardsville is receiving some attention.

Kingston has a population of about four thousand five hundred. In nineteen hundred, it was three thousand eight hundred and forty-six. It is not reliant wholly on those who work in the mines which abound in the territory contiguous to the borough. There is a silk mill employing four hundred hands, a machine shop where two hundred men work, a lace factory and the shop of D. L. & W. Railroad Company. The Wyoming Seminary, with two hundred students on its roll call, is in the central part of Kingston. It is also a residential suburb for clerks and others employed in Wilkes-Barre. Altogether, it is a prosperous, wide-awake and up-to-date community. Its valuation is in the neighborhood of six hundred thousand dollars, and recently it has been voted to bond the borough to the seven per cent. limit in order to lay street pavements and to build sewers in the same streets. These bonds are issued and made redeemable one year thereafter at the option of the borough. This method is pursued because the citizens prefer to pay off their indebtedness quickly, though it means a high tax rate.

The sewers now built are on the separate system. Formerly they were flushed with flush tanks. But to save the cost of buying water to operate the tanks, connections with house roofs were permitted and the flush tanks abandoned. This method has proved efficient. It is optional with the borough to terminate at any time any and all of the said roof water connection. This option was made in anticipation of the time when the borough might have to treat its sewage. There are now four miles of sewers approximately, and when the sewer is completed as designed there will be a total length of eight miles in it. Between three thousand and three thousand five hundred people now use the sewers. There are about seventy-five to one hundred cesspools in use and as many more privies. It is expected that there will be ten thousand people in the course of time in the district covered by the whole system as designed. The outlet of this system is a twenty-four inch pipe and it empties into Toby Run outside of the borough limits in territory belonging to Edwardsville borough. This territory has been annexed by Edwardsville recently. A short distance above the Kingston sewer outlet, the Edwardsville sewer main discharges into Toby Creek.

So far as is known, these are the only public sewers into Toby Creek. Between these points and the Susquehanna River, there is no use made of the water, the land being low and subject to inundation. The territory is unoccupied and of small value. Formerly Kingston borough had set aside five thousand dollars to pay for the cost of building a sewer outlet into the river at the mouth of Toby Creek; but when the Purity Water Bill was passed in nineteen hundred and five, in anticipation of the possibility of being required to treat the sewage thereunder, Kingston borough abandoned the idea of said outlet.

The borough wishes to lay pipes in the streets not now sewered but where it is proposed to pave the street surfaces. This, of course, is a very wise and commendable policy. So far as is possible, sewers ought always to be laid ahead of paving. Besides it has been the borough's policy to extend its system of sewers year by year as it could afford to pay for them. Therefore, it is desirable that this policy should continue and so the plan of the complete system of sewers is submitted and approval is asked of this plan.

It appears that the extensions consist almost entirely of eight inch pipe.

The borough should be commended for its foresight for having provided so wisely for its sewer system. It does not now have money enough to pay for disposal works. Furthermore it would not be fair to require the treatment of this sewage when the borough is one of a group of boroughs all of which are discharging sewage into one stream. The city of Wilkes-Barre empties its filth into the Susquehanna River. Kingston borough does the same although the volume of its sewage is small. Unless there appears to be special reason therefor, Kingston should not be required to treat its sewage at an earlier date than the city of Wilkes-Barre is required to treat its sewage.

However, should any of the municipalities on Toby Creek above Kingston seek to empty into the stream, which if allowed would pollute the water flowing down through Kingston and Edwardsville, it has been unanimously determined that the Commissioner of Health should prevent it. It seems probable that there may be a trunk sewer down this valley, and in such event this might hasten the treatment of the sewage in Kingston borough.

The nearest place below the borough on the Susquehanna River which takes its drinking water from said river is Danville, distant about fifty-two miles. Danville filters its water. Formerly Berwick, twenty-seven miles distant, took

three-tenths miles and reach an additional population of one thousand and fifty.

The borough being on the mountain slope has steep street grades and in consequence of the soil being comprised of clays and disintegrated sandstone and shales immediately above the coal strata, there is marked erosion which makes necessary the removal of storm water in underground conduits.

The necessity for surface drainage probably accounts for the existence of sewers and their general distribution after a complete plan in the borough.

It is represented by the petitioner that Panther Creek is composed of strong sulphuric acid water from the collieries which purifies the sewage before it reaches the Little Schuylkill River five miles below.

The places on the banks of the Schuylkill River below Lansford taking their water supply from the river are Pottstown, Royersford, Spring City, Phoenixville, Norristown and Philadelphia. Pottstown and Phoenixville do not attempt to purify the water except by sedimentation. The other places filter it, except Philadelphia, which filters the water in part only. The typhoid fever rate in Philadelphia is known the country over to be excessively high. There is not much significance in the records of typhoid fever cases in the other places, largely owing to the fact that private wells abound. Taking the number of cases inclusive from December, one thousand nine hundred and five to July, one thousand nine hundred and six, with the one thousand nine hundred census populations and stating the number of cases at the same rate per hundred yearly, it appears that the places using crude river water have the highest rates.

In consideration that the population sewerage into the river above Pottstown is not far enough removed to absolutely assure the benefits of the so-called self purification of the stream, and because the bacteria contents of the river water is usually high, it is somewhat remarkable that Pottstown and Phoenixville have not been visited by a typhoid fever epidemic. Possibly the fact may be accounted for by the use of the sedimentation basins and the peculiar characteristics of the water.

The Schuylkill River rises in Schuylkill County and takes nearly a direct southerly course to the Delaware River. The basin comprises an area of one thousand nine hundred and fifteen miles, is pear shaped being wide in the upper part and narrow in the lower part. From its source to the river mouth the fall is eight hundred feet in a distance of one hundred miles. Most of this fall is above the city of Reading which is sixty-two miles from the mouth. From Reading to Norristown, a distance of forty-one miles, the fall is three and one-half feet per mile. It is a trifle less from Norristown to the Delaware River. Below Reading the flow is sluggish at low water, about one mile per hour, but it rapidly increases to four miles or more per hour during freshets.

The largest tributary is the Perkiomen Creek which enters the river about eight miles above Norristown after draining a territory to the northeast of about three hundred and sixty square miles. In its course of thirty-five miles it falls about eight hundred and forty feet, is subject to freshets and is known to have delivered its maximum discharge in summer. The water shed is almost wholly in the triassic shale belt, is a moderate plateau under high cultivation with but about twenty per cent. wooded area and its torrents transport large quantities of surface soil in form of fine sediment which impart a characteristic, reddish yellow color to the stream.

The next tributary of importance is the Manatawny Creek which enters the river at Pottstown. It drains a territory of eighty-seven square miles of limestone, slate and shale formation which impart hardness to the water. This stream also transports sediment of a yellowish color.

The other tributaries of importance are above the city of Reading.

Tulpehocken Creek joins the Schuylkill on its west bank opposite Reading. It drains a water shed of lime stone and slate formation of two hundred and twenty-five square miles in area. The waters are strongly alkaline.

Malden Creek six miles above Reading is also a strongly alkaline stream. It drains an area from the east of two hundred and twelve square miles of lime stone and slate formation.

Twenty miles above Reading at the Schuylkill County line at Port Clinton borough, the Schuylkill River forks. The right branch is termed Little Schuylkill and the left branch Big Schuylkill River. Their drainage areas are respectively one hundred and forty-five and two hundred and eight square miles. Both of these streams drain the coal measures and are, therefore, highly acid.

On the Big Schuylkill are the East and West Schuylkill Districts of the southern anthracite coal fields in which are located forty-seven collieries, fourteen boroughs, fifteen townships and an aggregate population of sixty-five thousand three hundred and twenty-seven, census of the year one thousand nine hundred.

On the Little Schuylkill there are thirteen collieries, five boroughs and nine townships, with an aggregate population of twenty-eight thousand two hundred and twenty-three in the year one thousand nine hundred.

Both branches bring down in suspension quantities of culm and fine pieces of coal which deposit in eddies where there is slack water, and afford a means of revenue to those engaged in dredging it from the bed of the stream. Usually the waters are black in color on this account to within about twelve miles above Reading. Coal is not dredged from the river below this point where there is extensive slack water. Down to this point in the river there is known to be a chemical action owing to the presence of free sulphuric acid and sulphate of iron and alumina in the water. There are changes going on in combination whereby suspended matters of minutest form are coagulated and precipitated to the bottom. This is during dry times or ordinary stages of the river. Consequently the channel of the streams are continually filling up and this obstruction has been the cause for suits for damages against the various Coal Companies and remedial legislation has been sought. No effectual remedy has been afforded, however, except the natural one of freshets, which scour out the deposits and carries them on farther down stream.

Ordinarily the appearance of the river water at Reading is clear and of a greenish blue tinge, attributable to the fact that from Mohrsville and Shoemakersville, villages about twelve miles north of Reading, it flows over a limestone ledge, whereby the acidity of the Schuylkill River is partly neutralized by the carbonate of lime dissolved by the water. This carbonate of lime combines with the sulphate of iron and the alumina to form a hydrate which coagulates the fine suspended and coloring matter in the river water which has escaped sedimentation in the pool above and precipitates it, thereby causing in the twelve mile course to Reading, a clearing up of the river. Maiden Creek with its alkalinity materially aids this clarifying action here. The Tulpehocken and smaller streams below Reading from the limestone belt, bring down more calcium carbonate in solution and these still further reduce the acidity so that before the waters have reached Pottstown they have become alkaline. At Pottstown it is said the waters always scale boilers and never corrode them which is proof that the acid has become neutralized.

It would be strange indeed if at low stages of the river these various chemical and precipitating influences did not effect a very material diminution in the bacterial contents of the river. This chemical precipitation with what further goes on in the settling basins of the Pottstown and Phoenixville Water Works accounts for the small loss of life in these places due to the drinking of the river water without filtration.

However, storms rapidly change the ordinary conditions. The character of the river water changes continually by reason of local freshets on the catchment areas of the tributaries. Freshets from the coal districts occur every three or four months lasting twelve hours or so during which the river water is black and contains dark suspended matter for the entire length of the river. This is only when heavy precipitations occur over a large portion of the coal fields.

It is possible for fresh sewage from Lansford together with deposits along Panther Creek and the Little Schuylkill River to be brought down in freshet flow to the city of Philadelphia in twenty-four hours or less and, therefore, at such times Lansford sewage is one of the sources of menace to the public water supplies in the valley. Since there is an aggregate population of ninety-three thousand five hundred and fifty, census of the year one thousand nine hundred, in the coal fields, whose sewage may reach the streams, this aggregate menace cannot be stopped except individual cases be acted upon and while Lansford's contribution to the menace may be small under the most unfavorable conditions and nothing at all during ordinary times, yet in the interest of consistent public policy it would seem essential that the disposal of sewage there should be by some method whose object shall be to abate the aforesaid menace.

If it is true that there is little or no danger from Lansford sewage if discharged into Panther Creek during dry weather and that the danger arises during storms, then it is apparent that sewage disposal works to treat the dry weather flow and to by-pass the sewage during storms to the creek, would entirely miss the point. Therefore this argues for separate sewers.

After the proposed sewers are built there will be left approximately eight thousand five hundred dollars which the borough may raise for public improvements without exceeding the constitutional debt limit.

The borough has proceeded to construct the sewers in anticipation of permission from the Commissioner of Health to build them. Probably by this time the sewers are two-thirds completed. Had no work been done, the plans could have been changed to sanitary instead of storm sewers, and if it were feasible to arrange for an assessment of two-thirds of their cost, at

approximately four acres in it, a present population of about three hundred and twenty-five, and drains naturally towards the Susquehanna River.

The intention is to connect all roofs with the proposed sewer, and besides taking sewage, to permit cellar drainage to the pipes. It is also intended to admit street water into the sewer at one point where there is a slight depression in the street grade, but it does not appear that any computation has been made to determine whether the sizes and grades of the proposed sewers are sufficient to take the combined roof and surface water and sewage from the district.

The proposed sewer outlet is within one hundred feet of St. Johns Street outlet. Both of these public sewers may pollute the borough's ice supply which is taken from the river in the immediate vicinity. Furthermore, it is at this point that Buffalo Creek empties its flow into the river. Twelve miles up Buffalo Creek, the borough of Mifflinburg, one thousand four hundred and thirty-six population, is said to discharge sewage into the water. If this is so, it constitutes another source of contamination of said ice supply.

Because it is inadvisable to grant the permission asked, whereby the sewer outlet will be established near St. Johns Street at the city's ice supply, and because St. Johns Street sewer now constitutes a menace to said ice supply, as does also the liquid refuse from the Lewisburg Woolen Mills, discharged into the river at this point through an open ditch, it has been unanimously agreed that the interests of the public health demand that the sewage be conveyed from these three sources to some point farther down stream.

Because some time the necessity may be imperative for the purification of all the sewage of the borough before it is discharged into the river, and because the borough should anticipate its future want in the way of sewers by building what is required now, in conformity with the requirements of the future, thereby securing greatest efficiency and economy, it is, therefore, unanimously agreed that it is the duty of the Commissioner of Health to point out these facts to the authorities of Lewisburg and to withhold approval of the plan of the proposed sewers until said sewers are shown to be a part of a complete comprehensive sewer plan for the entire borough.

This plan should have for its object the collection of all of the sewage within the corporate territory and its speedy removal to a common and secluded place where the sewage may be purified in the most efficient and economical manner. Therefore, to bring about this result, roof water and street water should be generally excluded from the sewer. In so far as it is practical, every existing sewer should be used, and probably this may be largely done, but the subject should be studied by an expert, fully qualified by experience to properly advise about the matter.

Therefore, permission to build the sewers asked for in the petition is hereby withheld until such time as the borough shall present:

FIRST: A plan of a comprehensive sewer system of the entire borough to provide for the collection of the sewage from every part of the borough and its conveyance to a common point somewhere in the southwesterly part of the municipal territory.

SECOND: That this plan shall conform to the project of the ultimate purification of the sewage at or near the said point of collection of all of the sewage of the borough by the most efficient and economical method.

Harrisburg, Pa., June 20th, 1907.

LIGONIER, WESTMORELAND COUNTY.

This application was made by the borough of Ligonier and is for permission to install a system of sewerage and sewage disposal works and to discharge the effluent therefrom into the Loyalhanna Creek.

It appears that the application of the borough of Ligonier was for permission to discharge sewage into the Loyalhanna Creek at a point about seven and one-half miles above the intake of the Latrobe Water Works. The people of Latrobe drink this water without treatment.

Ligonier borough is located in the fork of the Loyalhanna Creek and Mill Creek. The land immediately contiguous to the said junction is low and subject to overflow. The built up part of the borough is on the hillside, but there are a few buildings on the low lands. The larger part of the borough drains to the Loyalhanna.

The village is noted chiefly as a summer resort for city people. There are no manufactories there of importance. Nominally its population is about eight hundred, but during the summer time visitors increase this by about one thousand. The elevation of the borough assures cool nights and pure air and the healthfulness of its municipal water supply brought in from a mountain reservoir of unpolluted water has added to the prestige of the place. A sanatorium is located in the centre of the borough.

There are no public sewers in the village, but there are two or more private sewers draining the hotels and other buildings and discharging into Loyalhanna Creek. Twenty or more buildings are said to be connected with these sewers.

Privies abound in the borough and there are few cesspools. Sink and wash water is usually conducted to and emptied into street gutters and alleys.

There is an ordinance requiring the building of tight cesspools, but it has been very difficult to enforce this ordinance and the regulation concerning the care and cleaning of privies and cesspools.

About fifty dwellings were erected in one thousand nine hundred and five and as many more the year previous, and it is plain that the present growth of the town demands more adequate means for the disposal of its sewage.

A new elegant high school building with ten rooms was recently completed at a cost of forty thousand dollars. This school house was equipped with modern water closets which are remaining idle pending the construction of a sewer system. The three hundred and twenty-five school children in attendance use a temporary privy.

It is proposed to build about three and one-half miles of combined sewers, ranging in size from eight inches to twenty-four inches in diameter. And it was proposed to take roof water from every building in the borough and possibly some street water also. The outlet into Mill Creek was to be twenty-four inches in diameter. It descended in the extension of McColly Street across the flats to the creek. The outlet into the Loyalhanna Creek was also to be twenty-four inches in diameter on the flats.

In compliance with a suggestion from the Commissioner of Health, the borough reconsidered this sewer design and submitted a new design which called for the collection of the sewage at one point by gravity through a system of pipes covering the entire borough and varying in size from six inches to twelve inches in diameter. This point of collecting was at the intersection of Walnut Street extended and Loyalhanna Street, where it was proposed to erect a sewage disposal plant comprising septic tanks and a contact filter. The sewage of the entire borough would by this plan flow to the purification plant. The outlet from this plant was to be a twelve inch pipe extended down stream half a mile into Mill Creek where it was to empty.

The plan was disapproved. The proposed site of the sewage disposal plant was within a short distance of the Ligonier Valley Railroad station and in a part of the town most likely to be occupied by buildings in the near future. Since a sewage disposal plant should be erected in a secluded place so that odors emanating therefrom shall not be troublesome to a large number of people, the lay-out as proposed was considered impracticable.

It would be foolish for the borough to expend money for a system of sewerage and a sewage disposal plant that would be a failure. It is better for the borough to build rightly the sewers as far as they are constructed.

It has been unanimously agreed that permission be given to the borough of Ligonier to build a sanitary system of sewers as proposed by the borough in compliance with the last design submitted and such permit is hereby granted under the following conditions:

FIRST: That the sewage from said sewer system shall be purified to a degree satisfactory to the Commissioner of Health by sewage disposal works, plans for which shall be submitted to the Commissioner of Health for his approval, and he may amend, modify or approve the same and fix rules and regulations for their operation, and said works shall be constructed and ready for operation on the day when the sewer system herein approved, or any part of it, shall be ready for use.

SECOND: That the sewage from the said sewer system or any part of it shall be conveyed to the said disposal works and there treated and said sewer system shall be constructed so as to intercept and stop the discharge of sewage now going into the Loyalhanna Creek from the private sewers existing in the borough, which interception shall be one of the first things accomplished by said sewer system.

THIRD: That the sewer system shall consist of the six inch, eight inch, ten inch and twelve inch pipe as now proposed, but the ten inch and twelve inch pipes may have substituted therefor eight inch pipes, and instead of the sewage of the borough being collected at the intersection of Walnut and Loyalhanna Streets, as now proposed, it shall be collected in the vicinity of Mill Creek and the location of the Ligonier Valley Railroad from which point it will require pumping to the required sewage disposal works wherever they may be located.

FOURTH: Said sewer system shall have proper manholes built at street intersections and at changes in line and grade of the sewers.

FIFTH: The borough shall extend the sewers from year to year as necessity requires in conformity with the sewer plans, and at the close of each year's work, shall submit a plan and profile of the sewers built for the year

to the State Health Commissioner for filing, together with such other information as he may require.

SIXTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., July 3rd, 1906.

LOWER MERION TOWNSHIP, MONTGOMERY COUNTY.

This application was made by the Commissioners of Lower Merion Township and is for permission to install a system of sewers in that part of said township known as Merion Creek District and for permission to discharge sewage therefrom into a sewer belonging to the city of Philadelphia and terminating at the boundary line between said city and said township.

It appears that an ordinance was passed by the Select and Common Councils of the City of Philadelphia on June thirtieth, one thousand nine hundred and two, providing for the connection of certain sewers to be constructed by the township of Lower Merion, with certain sewers of the city of Philadelphia, as follows; at City Avenue and Conshohocken Avenue; at City Avenue and Fifty-first Street; at City Avenue and Fifty-ninth Street; at City Avenue and Sixty-sixth Street; also at Overbrook Station, Pennsylvania Railroad and City Avenue.

These connections it is specified shall be made in such manner as shall be approved by the Department of Public Works of the City of Philadelphia.

Failure by said township to make annual payments provided for in the ordinance constitutes a forfeiture, and the city may thereupon disconnect the outlet of the sewers of said township from the city sewerage system.

The ordinance further provided, among other things, that in case the city of Philadelphia shall ever change the method of disposal of said sewage or drainage by treatment or otherwise, the township shall pay its proportion of the cost for such treatment or other disposal, as determined by the number of cubic feet of sewage discharged by said township into the sewers of the said city.

The ordinance also provides that domestic drainage only shall be received into the sewerage system and discharged into the sewers of the city of Philadelphia.

It further appears that Lower Merion Township commenced the construction of its system of sewers and desiring to connect with the city of Philadelphia, entered into an agreement on September second, one thousand nine hundred and three, with the city of Philadelphia in accordance with the terms of said ordinance.

The Township Commissioners did not at that time build that part of the sewer system designed to serve the territory within the Merion Creek drainage area. It is for permission to build sewers in this district and to make connections with the city of Philadelphia sewers as provided by said ordinance, that the application is now made.

The territory proposed to be sewered comprises about five hundred acres, situated on both sides of the main line of the Pennsylvania Railroad between the stations at Overbrook and Merion. Here there are about one hundred dwellings and a population of nine hundred people. Land sells for fifteen thousand dollars to twenty thousand dollars per acre when sales are made. Large estates are the rule, beautiful homesteads adorn the landscape, and there is no likelihood of a change in the class of occupation of the territory for several generations.

The range in sizes of proposed sewers is from eight to twelve inches. The outlet of the system is to be twelve inches and it is to discharge into a circular sewer seven feet six inches in diameter belonging to the city of Philadelphia. Storm water and roof water are to be rigidly excluded from the system.

A part of the sewer system of Lower Merion Township was built by the municipality and was in operation and discharging sewage through the city of Philadelphia sewers into the waters of the State at the time of the passage of the Act of one thousand nine hundred and five, and so is exempt under the law. But the law prohibiting such discharge from a sewer system which shall be extended subsequent to the passage of said law, unless upon application duly made to the Commissioner of Health, it is the unanimous opinion of the Governor, Attorney General and Commissioner of Health that the general interests of the public health would be subserved thereby, the township Commissioners have duly applied for a formal permit to do the things which all other parties interested approve and have agreed upon.

It does not seem practicable to dispose of the sewage in any other way than proposed and in view of this fact and the facts above mentioned, it has been unanimously agreed that the interests of the public health will be sub-

served by granting the permission asked, and, therefore, hereby and herein is granted permission to said township to build said sewer system, under the following conditions:

FIRST: That the terms of the agreement entered into on the second day of September, one thousand nine hundred and three, by and between the township of Lower Merion in the county of Montgomery, state of Pennsylvania, and the city of Philadelphia, county of Philadelphia, state of Pennsylvania, relative to sewerage, shall be fully complied with.

SECOND: That the plans and profiles of the sewers built each year shall be filed with the Commissioner of Health, together with such other information relative thereto as he may require.

THIRD: If any other method of sewage disposal, or any other plan of disposal than the one now proposed becomes necessary at any time, plans thereof shall be submitted to the Commissioner of Health for his advice and approval and he may modify, amend, or approve the same and fix rules and regulations thereof.

FOURTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

The attention of the authorities should be called to the desirability of having untrapped house connections with the sewers, there being provided a free air vent from the sewer connection to the roof of the dwelling whereby a free circulation of air may be maintained from said sewer to above said roof.

Harrisburg, Pa., July 3rd, 1906.

MEADVILLE, CRAWFORD COUNTY.

This application was made by the city of Meadville and is for permission to extend the sewer system and to discharge the sewage therefrom, untreated, into French Creek.

It appears that Meadville is a city of the third class. It is the county seat of Crawford County. A distinctly residential community in an agricultural district, it has been slowly growing. There are no industries of extensive importance. The Phoenix Iron Mills and the Meadville Malleable Iron Company are the largest. The Erie Railroad has repair shops here.

The streets are wide, house lots commodious and dwellings are uniformly set back from the street lines and have grass plots in front of them. A very great percentage of the inhabitants live in their own homes.

Meadville has some reputation for its institutions of learning. Allegheny College, founded in eighteen hundred and fifteen, has between four and five hundred students enrolled. The Unitarian Theological Seminary is richly endowed, and the public schools rank high.

The city is located on the east bank of French Creek. Recently an addition to the city has been made, called the Fifth Ward. It is a tract of land west of French Creek in the extreme northwestern corner of the city.

Northeast and south of the city, on the east side of French Creek, Meadville is surrounded by West Mead Township. West of the city and French Creek is the township of Vernon. Kerrtown is a village in Vernon Township on the banks of French Creek opposite the city.

French Creek valley in this vicinity is wide and flat. The Fifth Ward is commonly referred to as the flats. The lower part of Meadville city is almost flat and subject to overflow from the creek. The remaining part of the municipal territory slopes gradually upwards to the hills in West Mead Township. College Hill has its summit in the northeastern corner of the city. Huidekoper Hill is south of it, the two being separated by Mill Run which flows from the east through the central part of the city to French Creek. Cussewago Creek rises in Erie County and flows southerly into French Creek, which it enters at a point on the east bank of French Creek south of the Fifth Ward. Above the flats and separating French Creek valley from the valley of the Cussewago Creek is the hill called Round Top.

The city owns its own water works, electric light plant, sewer system and garbage crematory.

The population in nineteen hundred was ten thousand two hundred and ninety-one. In eighteen hundred and ninety it was nine thousand five hundred and twenty. Now it is estimated to be about eleven thousand, and there are said to be over twelve thousand people using city water.

In eighteen hundred and ninety-eight the city purchased the water works of the Meadville Water Company. They consisted of a pumping station on the east bank of French Creek in Mead Township just above the city line, a storage reservoir on College Hill, within the city limits, and the distributing system of pipes. The water was taken from French creek unpurified and raised to the reservoir on the hill.

During the summer of nineteen hundred and one engineers were employed to advise with respect to a new supply of water because of the impurity of French Creek water and because of the worn out and dilapidated condition of the pumping plant. A preliminary examination pointed to ground water from driven wells as the most promising source of a new and pure and cheaper supply than a purification of the French Creek water which appeared to be the only other feasible source. Accordingly tests were undertaken to make sure that the ground water would be satisfactory in both quantity and quality in the Cussewago Creek valley between said Creek and Round Top Hill. Here the natural water shed of Cussewago Creek is about eighty square miles, of which over ten square miles in the valley, from surface indications, appear to be composed of water bearing strata of gravel and sand, indicating a large water storage. The tests proved the existence of a continuous flow of large quantities of ground water in the same direction and general slope of the waters in Cussewago Creek. The general declination of this slope being about six feet per mile which is consistent with what is known to be the general water slope in sandy and gravelly soil. It was concluded that there was a sufficient supply of ground water in the territory to supply at least four million gallons daily indefinitely.

The city erected a pumping station and drove wells in its vicinity on the Cussewago flats in Vernon Township just north of the city line. This was done during the fall of nineteen hundred and three and spring of nineteen hundred and four. The new pumping machinery was put in operation June nineteen hundred and four, and since then water has been drawn from the wells and supplied to the city with one or two exceptions.

The number of typhoid fever cases reported during nineteen hundred and four was twenty-nine as contrasted with eighty-seven for nineteen hundred and three when French Creek water was used entirely, and forty-eight for nineteen hundred and two. Of the twenty-nine cases, twenty-seven were contracted within the city, fifteen of which occurred in the Third and Fourth Wards where most of the wells, whose waters were used for domestic purposes were located. Many of the wells were known to be near old buried vaults and cesspools, and the conviction prevailed that those wells should be abandoned.

The old French Creek pumping station is still maintained for emergency uses. During the summer of nineteen hundred and five, owing to a breakdown at the new pumping station, water was pumped from French Creek from July eleventh to August ninth, inclusive. About forty-six million gallons of French Creek water was supplied to the city during these thirty days. Ten cases of typhoid fever were reported for the month of August and a careful inquiry shows three cases coming from families where city water was used during the breakdown, four where well water was resorted to, and one where both city and well water were used indiscriminately. For the months of September, October and November respectively there occurred seven, six and five cases of typhoid fever. So long as the city depends upon one pump at the new station, in case of a shut down of more than three days, it will be necessary to resort to French Creek or possibly not less dangerous use of well water. Both expedients should be obviated. The use of wells in the city should be condemned, and duplicate machinery and force main should be provided at the new station capable of furnishing enough water for all purposes.

The high insurance rate at Meadville seems to make it desirable that the old pumping station be kept in readiness for use on short notice, but this would not be necessary were the new supply adequately availed of.

It appears that of the twenty-one hundred and sixty services in the city five hundred and fifty-one only are meter, and that the per capita consumption on the basis of an estimated population of eleven thousand is one hundred and twenty-four gallons. An extension of the meter service should reduce this per capita rate and prevent waste while promoting a liberal use of water.

At present the pumps are drawing from sixteen wells and eight more have been driven and will be connected up within a short time. If these are not sufficient, more wells should be added.

The water works are self supporting. Their earning capacity is upwards of fourteen thousand dollars annually.

In eighteen hundred and ninety-two the city employed an engineer to lay out a comprehensive plan of sewerage. This was done and the plan has been largely followed since. It is a separate system admitting storm water limited to that which falls on the roofs of the buildings of the city.

The original plan contemplated the improvement of the natural water courses, namely, Mill Run and Neason Run within the city limits.

Mill Run drains a territory of six and one-half square miles.

Neason Run has a drainage area of one half of a square mile above the city limits near Grove Street. At times of heavy rains these runs are often

of insufficient capacity to convey the water without damage to abutting property. It was proposed to widen, deepen and straighten the channels and thus increase their carrying capacity either by open or closed conduits.

The improvements have not yet been made. If ever undertaken, all sewage should be excluded from the conduits.

The sewer system proper comprises three districts. Prior to eighteen hundred and ninety-three, when the new system was built, there existed an eighteen inch sewer in Water Street. This eighteen inch sewer was made the main for the Water Street district, or District Number One. It now discharges into the thirty-six inch sewer outlet for the Park Avenue district, or District Number Two, which includes all of the city east of the Water Street district.

West of District Number One there is a tract too low to be taken into the outlet for districts. One and Two, unless pumping be resorted to. Therefore, this area between District Number One and the creek comprises District Number Three, and it has a gravity outlet into the creek just above Mercer Street bridge and the mouth of Mill Run. It is twelve inches in diameter. At the present time there are about forty-five hundred feet of sewer connected with this outlet, and in the future there may be many more feet added in the streets now laid out but unsewered in the district. The thirty-six inch sewer outlet is into French Creek at a point just below city line in West Mead Township. Here the great bulk of the city sewage is discharged.

The entire system aggregates eighteen miles of public sanitary sewers of which fifteen miles have been built since eighteen hundred and ninety-three, so are new. Besides these there is nearly a mile of sewers laid by property owners, principally in alleys and by resolution of Councils, and about one mile of private sewers laid prior to eighteen hundred and ninety-three, of which there are no accurate records. The new sewers have cost about seventy-two thousand dollars. They are designed to carry forty-four thousandths cubic feet per second per acre on the basis that the sewage proper will not exceed eighteen thousandths cubic feet per second—allowing one hundred gallons per capita and eighty people to the acre, one-half flowing off in eight hours, and the remaining twenty-six thousandths being roof water and cellar drainage.

The design calls for manholes at street intersections and at changes in line and grade. At the termini of sewers are manholes to facilitate flushing by fire hose.

About ten miles of the sewers are eight inches in diameter.

All of District Three and the lower part of District One and District Two are frequently covered with water overflowing from French Creek, at which times the sewers and house cellars are filled with water. An effort has been made to remedy the back flooding of the sewers by providing Districts One and Two with a pumping station. During ordinary stages of the river the sewage from these districts flows by gravity to French Creek. But during high water a gate is closed in the outfall sewer to prevent the river water setting back. To prevent the sewage from collecting in the sewers, a pump is started and the sewage lifted from the collecting chamber at the gate into the sewer below and beyond the stop gate from whence it flows from the higher level to French Creek.

The pumping plant consists of one centrifugal pump directly connected to an electric motor, the electricity for the motor power being supplied from the Meadville Traction Company's line. The capacity of the plant is said to be over four million gallons daily.

In the districts now covered by sewers it is estimated there is a population of nine thousand people, eight thousand of which live in dwellings connected with the sewer. It is reported that there are over three hundred and seventy-five buildings on the line of sewers not yet connected. There is an ordinance now operative requiring the abandonment of outdoor closets on sewer streets. Cesspools, as well as privies, are common in the city.

The city asks permission to extend the sewers in the present sewer district from time to time as may be necessary in accordance with the plan upon which the city is now building the system.

This plan does not make provision for sewers in the Fifth Ward on the flats, nor does it contemplate sewers in Kerrtown, which is not now within the corporate territory of the city, but will likely be in the future.

Approval of this application must therefore be under conditions conforming to the comprehensive sanitary system which should prevail when sewers are built in all parts of Meadville.

Meadville is twenty-eight miles above the city of Franklin which is on French Creek and has an emergency intake into said creek in connection with its water works system. Six miles above Meadville on the creek is the borough of Saegertown, and ten miles above, the borough of Venango, and fourteen miles above, the borough of Cambridge Springs. All three places contribute sewage to the creek. At the present time the nine hundred square mile water shed of the creek above Meadville is yielding an astonishingly

There are about one hundred cesspools in the borough and six hundred and seventy-five privies. There are now three hundred and fifty sewer connections and there is a total of sixteen hundred and fifty buildings in the municipality.

There are said to be very few wells or springs in use in the borough. The water works of the borough are owned by the Citizens Water Company of Milton and operated by the White Deer Creek Water Supply Company. Formerly the Susquehanna River water was the supply. It was pumped from the foot of Center Street into a reservoir on the hill elevated about one hundred and seventy feet above the river. This source of supply, it is said, has not been used, at any time during the last six years, although the pumping station is maintained in anticipation of emergencies requiring the use of river water. The present supply is taken from mountain streams in Union and Centre counties and is delivered by the White Deer Creek Water Supply Company to Milton as well as other places of which Lewisburg is one. The plan of the water pipe system shows two mains through which water is delivered from the Mountains to Milton, one crossing the Susquehanna River at Church Street and the other crossing the river near the bridge and Mahoning Street. These supply mains are about two-thirds of a mile apart and serve to reduce the liability of the present supply being shut off or the necessity for the use of the river water.

Three miles below Milton on the opposite side of the river is the borough of Lewisburg. Water from the river is occasionally taken from the river to meet deficiencies in the present mountain supply. The intake pipe extends out towards the middle of the Susquehanna River. The sewage from Milton menaces this supply. Thirteen miles below Milton is the borough of Sunbury which takes water from the river occasionally. It is said to be subjected to mechanical treatment.

Twenty-seven miles above Milton, the sewage of the city of Williamsport is discharged into the river. On account of the pollution of the river by sewage, the pumping of crude water therefrom into the water works system at Milton or Lewisburg is a menace to human life and will be so long as sewage is so discharged.

It is proposed to build about sixteen hundred feet of eight inch and ten inch sewers from the present terminus in Mahoning street up said street and Shakespeare Avenue to a summit. This extension conforms to the plan originally laid out and adopted by the borough and of which the existing sewers are a part. The intention is to extend the system yearly as owners of property may petition or the necessities of the case may require. Less than one-half of the population now use the system. If the lineal feet of sewers were doubled making a total of about seven miles most of the entire population would be provided with sewerage facilities.

The borough ought to have sewerage more universally than at present, because the hill districts are quite thickly populated and the adjoining valley districts also.

The authorities of Milton should be commended for the prudence manifest in the adoption of a comprehensive plan of sewerage for the entire borough territory. The cost of the preparation of the plan will be saved many times over before the entire system is completed. In fact approval of the sewer system and of extensions can be given at this time without hesitation on account of the thoroughness with which the situation has been studied in the past by the engineer, who designed the sewer system.

However, the present system contemplates the discharge of the sewage into the river for all time. It appears that even the emptying of the sewage from less than half of the population of the borough, at a point in the river three miles only above the point, where the water from the river may be taken for drinking purposes, menaces the lives of those who drink the water in Lewisburg. The Commissioner of Health cannot give sanction to the extension of the sewer system which means an increase of double the volume of sewage which now goes into the river from the borough of Milton, without making provision for the protection of the public health against the danger which the sewage from the borough of Milton may create.

In turn it is for the interests of the public health that sewage should cease to be discharged into the Susquehanna above the emergency intake of the Milton Water Works system into the said river, where such discharge is within a distance which menaces said emergency supply.

It appears that it is possible for the borough to intercept the sewage from the present sixteen inch and twelve inch outlet sewers into the river and to convey the sewage therefrom to a pumping station site from which the sewage can be lifted to sewage disposal works which may be located within the borough limits at a secluded place.

A unanimous agreement has been reached that the interests of the public health demand that permission be given to the borough of Milton, and herein

such a permit is issued to extend the sewer system in conformity with the plans submitted, under the following conditions:

FIRST: That the minimum grade on the sewers shall not be less than three-tenths per cent, and that this low grade shall not be adopted unless it is found to be absolutely necessary.

SECOND: That a plan and profile of every street sewer in the entire system as designed shall be submitted to and filed with the Commissioner of Health and at the expiration of each season's work, plans and profiles of the sewers built for that year shall be prepared and filed with the Commissioner of Health, together with any other information which he may require.

THIRD: That suitable manholes shall be built at every change in line of grade, all connections with the sewers from buildings shall be untrapped, and records shall be kept and plans made of every house connection with the sewers. These shall be for reference, especially for the local Board of Health and officers of the State Health Department.

FOURTH: Roof and storm water shall be excluded from the system and periodic inspection, at least once monthly shall be made of the sewers and reports made and kept thereof for reference.

FIFTH: That on or before July first, nineteen hundred and eight, the borough shall prepare a plan for the interception of the sewage of the system and its conveyance to and purification by some approved process, which plan or plans shall be submitted to the Commissioner of Health, who may modify, amend or approve the same and fix the time within which said works shall be built.

SIXTH: This permit to discharge sewage from the extension of the sewer system of the borough shall cease on the first day of July nineteen hundred and eight. At this time, if the borough shall have complied with the conditions herein stipulated, the Commissioner of Health may extend the time in which sewage may be discharged into the Susquehanna River from the borough.

SEVENTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., August 13th, 1906.

MT. CARMEL, NORTHUMBERLAND COUNTY.

This application was made by the borough of Mt. Carmel and is for permission to extend the sewer system and to discharge the sewage therefrom, untreated, into the Shamokin Creek, inside the limits of the borough, and also outside, in the township of Mt. Carmel, said county, at a point in said creek about six miles above the borough of Shamokin.

It appears that Mt. Carmel borough is located in the extreme southeastern corner of Northumberland county, and near the head waters of Shamokin Creek in what is known as the Upper Shamokin Valley, being separated from the Shamokin Valley proper by the parallel ranges of mountains called Big and Little Mountains. Shamokin Creek cuts its way through these mountains which are distant nine miles below Mt. Carmel. At the entrance to the gap is located the borough of Shamokin, population eighteen thousand two hundred and two in nineteen hundred. After passing three miles through the gap, the creek enters a wide valley, mountainous in topography, and drained by numerous tributaries to the creek, and at a point distant twenty-eight and three-tenths miles from Mt. Carmel, the creek enters the Susquehanna River, the last two and a half miles of its course being by or near the southerly boundary of the borough of Sunbury.

The borough is also located near the end of the West Mahanoy district and near the Shamokin district of the western middle coal fields of the anthracite coal fields of Pennsylvania.

This section of the country is practically uncultivated. The verdant timber was cut off years ago and the inhabitants are now engaged in mining. Mt. Carmel is wholly dependent upon the coal industry. There are twelve collieries within a five mile radius of the borough. The mine waters carrying free sulphuric acid, iron and coal dirt, are discharged into the creek and pollute it. The stream above Mt. Carmel is fed from a water shed of about five square miles and very precipitous. One mile below the borough, Shamokin Creek receives the flow from a tributary which drains about seven square miles. Two and a third miles below the borough there is a small run from the south emptying into the creek. Between the borough and this point Shamokin Creek does not fall rapidly, and there are some marshes here. Between this point and Shamokin, which is about six miles farther on, there is a rapid fall in the creek approximating three hundred feet.

Mt. Carmel is built largely on the south side of the creek on a low hill at the foot of the mountain. Its population now is about fifteen thousand. In nineteen hundred it was thirteen thousand one hundred and seventy-nine. Its water supply is furnished by the Mt. Carmel Water Company. There are

tion of the sewage polluted river water into the Sunbury water works' system, it has been determined that the general interests of the public health demand a countenance by the Commissioner of Health of the temporary continuance only of Northumberland's sewage disposal into the Susquehanna River, pending the preparation by the borough authorities of plans for the treatment of the borough's sewage.

In the interests of the public health, permission is hereby granted for the following additions to the present sanitary sewer system, as per schedule.

Schedule.

One thousand and twenty-five feet of 15-inch sewer, 525 feet of 12-inch sewer, 1,200 feet of 10-inch sewer, 1,575 feet of 8-inch sewer.

All as shown on the plans accompanying the application, said plans being entitled "Map, Northumberland, Pa., Sewer, July 1, 1905, W. G. Lenker, Boro. Engineer, Scale 300' per 1", on the following conditions:

FIRST: That storm water be excluded from the system.

SECOND: That lampholes shall not be substituted for manholes, but that manholes of proper design be built at all street intersections and changes in line and grade of the proposed sewers.

THIRD: That no pathological material from a laboratory shall be discharged into the sewer system. The proper authorities shall cause these wastes to be incinerated on the premises.

FOURTH: Each year's sewer work shall be plotted on a plan and profile, and accurate records of all sewer connections shall be made and kept on file in the borough office, and a copy thereof shall be filed with the Commissioner of Health.

FIFTH: Such further information relative to sewerage and disposal as may be required of the borough authorities, by the Commissioner of Health, shall be submitted when called for.

SIXTH: That the plan showing the entire borough limits, together with the present sewer district and the territory likely to be ultimately sewered, giving the sizes, grades, elevations of the sewers and street surfaces in existing sewers and those ultimately to be built, shall be prepared and submitted to the Commissioner of Health.

SEVENTH: That the borough authorities shall on or before the first day of July, nineteen hundred and six, submit to the Commissioner of Health for his consideration and approval a plan for the treatment of the sewage of the borough.

Harrisburg, Pa., October 18th, 1905.

O'HARA TOWNSHIP, ALLEGHENY COUNTY.

Aspinwall-Delafield Company.

This application was made by the Aspinwall-Delafield Company, of Pittsburg, and is for permission to extend its sewer system in the township of O'Hara, Allegheny county, from the Delafield addition to the borough of Aspinwall, and to discharge the sewage therefrom, untreated, through the Aspinwall borough sewers into the Allegheny River.

The Aspinwall-Delafield Company of Pittsburg was incorporated under the laws of the State on May fourth, nineteen hundred and five, for the purpose of purchasing, holding, leasing and selling real estate.

The company laid out a tract of land of about forty acres in extent to the east of Aspinwall borough and adjacent thereto, built sewers and water pipes in the streets, paved the sidewalks and highway surfaces and began the erection of houses in the territory. It then gave the streets and their improvements to the borough, the territory being annexed in due form. However, an agreement was entered into between said company and said borough relative to sewers. The agreement is as follows:

"The control and ownership of said sewers shall belong to said borough, saving and reserving, however, to the said company, its successors and assigns, the right of sewerage therein free, of connecting charges, one hundred and ninety-five lots in said plan, and further saving and reserving to said company, its successors and assigns, the exclusive right to sewer therein the land situated back of, and beyond, the territory to be annexed by said ordinance."

This outlying district, comprising about three hundred acres, is most beautifully located on the uplands and hills back from the river. The country is rugged, adapted to landscape architectural treatment, and the Delafield Company intends to lay out the tract and improve it for residential purposes. According to plans now under consideration the company is to have each house lot in the greater portion of the property include not less than one acre of ground. At present, however, about ten acres only, lying immediately north of the Delafield Addition have been laid out into building lots. The remainder of the property is farm and woodland.

The storm waters from perhaps two hundred and fifty acres come down through various small natural water courses in the tract and joint in the main water course, emptying into the forty-eight inch sewer extending through the Delafield Addition to the Allegheny River. The last four hundred feet of this sewer is across land of the city of Pittsburg, upon which has been erected the filtered water reservoir of said city's water works system. Through this narrow strip which is in O'Hara township the forty-eight inch sewer was extended by the city with the expectation that it was to receive surface drainage only from the area tributary to it. It now appears, however, that the sewer is to be used as the outlet for all storm water and also for the sewage of the ultimate population upon the Delafield Addition and the O'Hara township district.

Since the intake of the Brilliant pumping station, which supplies raw river water to the city of Pittsburg, is located on the opposite bank of the river from the forty-eight inch sewer and several hundred feet down stream, so that it is possible, on account of currents and the pool formed in the river by the United States Government dam, twelve hundred feet below said intake, for the discharge from said sewer to be pumped into the city water pipe system, the authorities of Pittsburg have filed a remonstrance against such discharge, and have asked that measures be enforced to permanently remove the menace from the pool.

The forty-eight inch sewer takes the place of a former natural water course. It starts at the river and passes back up Brilliant avenue to Fourth street; then at right angles easterly in Fourth street to Delafield avenue, thence at right angles northerly in said avenue to the end of the drain in the northeast corner of the Delafield Addition. All of the lateral sewers in said addition connect with the forty-eight inch sewer. They are principally ten inches in diameter and take the sewage and roof water from the dwellings. From present indications, in the immediate future the territory will be completely built up and not less than one thousand people will contribute to the flow in the sewers.

If these sewers belong to a private corporation, the Commissioner of Health could order a discontinuance of the discharge of sewage from them into the river regardless of when they were built. It appears also that these sewers were made public sewers subsequent to the passage of the act of April twenty-second, nineteen hundred and five, and, therefore, the system was not owned and maintained by a municipality and was not in operation and discharging sewage into the waters of the State at the time of the passage of said act. Consequently, the sewers in the Delafield Addition do not come under the exemption of the law, and the discharge of sewage from them, to be legal, must be approved by the Commissioner of Health. An application for such discharge has been made to the Commissioner of Health by the public authorities of Aspinwall borough and is now pending. Any reservation or agreement whereby the Aspinwall-Delafield Company may have the right to discharge sewage into the Delafield Addition sewers must come under the same regulations that may be imposed by the Commissioner of Health upon the borough authorities with respect to the use of said sewers.

The said company purposes to extend the borough sewers northerly into the O'Hara township district from time to time as may be necessary. No detail plans have been submitted. It is for general permission to make extensions that the application has been made.

If the forty-eight inch sewer outlet were extended down the river bank to discharge below the United States Government dam, the menace to the Pittsburg water supply from this source would be removed, but it would not remove the menace to the supplies of other municipalities which draw their drinking water from the river below the dam. There are ten such municipalities in the State of Pennsylvania, the one farthest removed being thirty-six miles below Aspinwall.

Thus it may be seen that the proposed extension if permitted to discharge into the Allegheny River will increase the pollution of the water supply for a large number of people.

There is no other way for the surface water from the O'Hara township district to be disposed of, than into the Allegheny River. However, it is not necessary to obliterate the natural water courses in this district by enclosing them in culverts or drains into which sewage is also to be conveyed. The sewers can be rendered more efficient and economical of construction if they be designed to exclude storm and roof water, and the construction of a separate system will facilitate the plan for the interception of the sewage from the borough of Aspinwall and its treatment at sewage purification works, a project which must be undertaken for all of the municipalities in the lower Allegheny River basin in the Pittsburg district if the waters of the river are to be continued as they must as sources of public supply.

The petitioners, it would seem, should not be granted the right to extend the borough sewers into O'Hara township unless by a plan which shall conform to the requirements which the Commissioner of Health may impose on the borough of Aspinwall.

Therefore, it has been unanimously agreed that the interests of the public health will be conserved by the granting of a permit, which is herein granted,

to the Aspinwall-Delafield Company to lay sewers in O'Hara township and connect them with the Aspinwall borough sewers, under the following conditions:

FIRST: That a plan and profile of the proposed sewers for the entire district shall be prepared and submitted to the Commissioner of Health for his approval before any of said sewers shall be constructed.

SECOND: That the proposed sewers shall be designed to exclude all roof and storm water and shall be provided with manholes at all changes in line and grade and at street intersections. Where surface drains are needed, conduits for this purpose shall be independently provided.

THIRD: That all regulations, conditions and stipulations imposed, or that may be imposed by the Commissioner of Health, upon the borough of Aspinwall relative to the discharge of sewage into the Allegheny River from the sewers in the Delafield Addition of said borough shall extend and apply to the said Aspinwall-Delafield Company, its successors and assigns, in so far as the same may be legally relevant.

FOURTH: At the close of each season's work the said company shall prepare and file with the Commissioner of Health a plan and profile of the sewers built during the year, together with such other information in relation to the same as the Commissioner of Health may require.

FIFTH: If, for any reason, the sewers, or any part thereof, have, in the opinion of the Commissioner of Health, become a nuisance or menace, then the company, its heirs or assigns, shall adopt such remedial measures as the Commissioner of Health may prescribe or approve.

SIXTH: This permit to discharge sewage into the borough sewers in the Delafield Addition to Aspinwall is given under the express stipulation that said company is otherwise in possession of the right to discharge sewage into said sewers, but if this be not the case, the company should obtain the right, subject to such limitations, as the Commissioner of Health might impose, in addition to the conditions which the borough might impose.

SEVENTH: No pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., November 7, 1906.

OIL CITY, VENANGO COUNTY.

This application was made by Oil City and is for permission to extend its sewer system and to construct new sewers in Cooper avenue district and to discharge the sewage therefrom into the waters of the State.

It appears that the city government of Oil City, under provisions of ordinance number five hundred and eighty-eight, entitled "An ordinance providing for changing, altering and re-locating the course or channel of the Cooper Avenue Run or water course so called, in the city of Oil City, and for walling and covering it over, and providing that it be used as a part of the sewerage system of said city, and providing for the construction of a sewage system in the Eighth ward of said city, of which it shall be a part, to be known as the Cooper avenue sewer," did prior to May seventh, one thousand nine hundred and six, when application was made to the Commissioner of Health for approval of the plans, enter into contract for the construction of the Cooper avenue district sewer, and that the contractor was engaged in prosecuting the work on or before said date.

The plans under construction at the date mentioned, provided for the conveyance of both storm water and sewage in the same pipes and conduits into Oil Creek near the Pennsylvania Railroad bridge. This point is in the extreme northeastern corner of the city above all other sewer outlets in the city.

The Cooper avenue district is occupied by dwellings of people of the less resourceful class. With respect to the district, it may be said that the population therein is estimated to be between twenty-five hundred and three thousand. The area comprises one hundred and fifty acres of which one hundred and ten are built up. There are no industries in it. The district is on the site of a very steep and high hill, and, in consequence, rain water has a scouring effect which is apparent in the street gutters and in yards. Slops and wash water are now discharged quite universally into the street gutters. Some of the dwellings are connected with cesspools which are often full and frequently overflowing, and there are in the neighborhood of four hundred privies on the hillsides whose contents are more or less distributed broadcast over the ground by surface water. The local board of health has been powerless to contend with the insanitary conditions in the district. A sewer system is urgently needed.

With respect to the entire municipality it should be noted that Oil City is peculiarly situated topographically. The Allegheny River flows in a general westerly direction through the center of the city, and Oil Creek flows southerly and joins the river in the center of the city. The business section of the city is on a narrow flat at the confluence of these two streams and extends up Oil Creek valley. On either side of these two streams are very steep and high hills, and with the exception of the flats which are about fifteen feet above the

ordinary stage of the water, Oil City is a hillside community cut up into three distinct districts and separated by the rivers.

There are five sewer outlets in Oil Creek at the present time, and there are eleven sewer outlets into the Allegheny River below the mouth of Oil Creek and seven outlets into the river above said mouth. Besides these up streams there are many private sewers discharging into the natural water courses.

It appears that the city owns and operates its water works system. The source of supply is mainly derived from driven wells located along the banks of the Allegheny River above the city. The water appears to be good, and favorable analyses have been obtained. But there is a twenty-four inch emergency intake pipe into the Allegheny River opposite the pumping station, whereby in times of emergency, water is taken crude from the river and supplied to the city. This river water is polluted by sewage discharged from the Oil Well Supply Company's plant and by municipalities up stream.

The use of the river water should be reduced to the minimum by increasing the number of wells and the building of a duplicate supply pipe or by other and suitable means, so that only in case of a great conflagration should it ever be necessary to introduce raw river water into the water works system.

Various industries in Oil City have independent water supply plants, raw river water being the source. Railroad employes frequently drink this water and during nineteen hundred and five two-thirds of the cases of typhoid fever in the city were among railroad men.

It appears, therefore, that the interests of public health in Oil City require that sewage should cease to be discharged into the Allegheny River above the emergency intake of the city's water works system.

It further appears that no municipalities below Oil City take water from the river for drinking purposes nearer than Emlenton, Parker Landing City and Kittanning, thirty-three, forty and forty-five miles distant respectively.

It has been unanimously agreed that the interests of the public health demand that municipalities in the Allegheny River Valley shall begin to consider means for the discontinuance of the discharge of sewage into the waters of the State therein.

With this idea in mind it has been unanimously agreed that the interests of the public health demand that permission be granted and it is herein granted to Oil City to extend its sewer system and to build sewers in Cooper avenue district and to discharge the sewage therefrom into the waters of the State on the following conditions:

FIRST: That the proposed plan as submitted on May seventh, one thousand nine hundred and six, and as modified by resolution of Council on May twenty-eighth, nineteen hundred and six, and approved by the Mayor, May thirty-first, nineteen hundred and six, is the one hereby approved. The outlet from said system is to be into Oil Creek, and the sewage therefrom shall be discharged into Oil Creek until such time as the Commissioner of Health shall order it to be taken out, together with the sewage from all of the sewers which now empty into Oil Creek.

SECOND: That petty extension of summit sewers in the city may be made from time to time, and in so far as possible, they shall be made a part of the sewer system of the city, whose object shall be the ultimate collection of all of the sewage of the city and its removal to one common point or points where the sewage may be treated according to some approved plan.

THIRD: That on or before July first, nineteen hundred and eight, the city shall prepare and submit a plan for the interception and treatment of all the sewage of the city, and the Commissioner of Health may modify, amend or advise relative to said plan, and approve it.

FOURTH: That on July first, nineteen hundred and eight, provided the city of Oil City has complied with the above conditions, the Commissioner of Health may extend the time and fix the date of said extension, wherein Oil City may discharge sewage from its sewers into the waters of the State.

FIFTH: That at the close of each year plans of the yearly extensions of the sewer system shall be prepared and certified and filed with the Commissioner of Health together with such data as he may require.

SIXTH: That no pathological material from any laboratory shall be permitted to discharge into the sewer system. The proper authorities shall cause these to be incinerated on the premises.

SEVENTH: That the City Council call attention of the Water Board to the danger of using crude river water as a source of supply to the water companies of the city to the end that said Water Board shall take such means as may be determined upon to obviate the necessity for such use of the Allegheny River water.

Harrisburg, Pa., June 20th 1906.

OSBORNE, ALLEGHENY COUNTY.

This application by the borough of Osborne is for permission to establish sewers for a part of the territory of the borough and for permission to discharge the sewage therefrom, untreated, into the Ohio River.

It appears that the borough is a residential suburb of Pittsburgh, and owing to the class of its citizens who are resourceful, and the development of the territory, the population which approximates four hundred and fifty, is not likely to increase very much.

The attention of the borough authorities should be called to the fact that it is entirely unnecessary to build sewers larger in diameter than six inches where the grades are to be four per cent. or more, and that where the grades are less than four per cent., an eight inch sewer will be amply adequate to efficiently remove the sewage. Attention to this matter would already have saved the borough several thousand dollars. It is not necessary to provide flush tanks at summit ends.

Harrisburg, Pa., September 26th, 1906.

SUNBURY, NORTHUMBERLAND COUNTY.

East End Sewer Company.

This application was made by the East End Sewer Company of Sunbury and is for permission to extend its sewer system in the borough of Sunbury and to discharge sewage from said extensions into Spring Run within the limits of said borough.

It appears that Sunbury is a slow growing municipality of about twelve thousand population, located on the east bank of the Susquehanna River in the angle formed by the north branch of the river and the main stream. It extends for two and a half miles along said bank and is divided into an east and west side by Spring Run, which rises near the north branch and flows southerly through the borough half a mile from and parallel to the river, emptying into Shamokin Creek about a mile above the point where the creek enters the river.

The west side is flat and dyked off to prevent flooding by river freshets. The east side is rising and hilly ground and largely residential. Shamokin Creek bounds the borough on the east and south, and the north branch of the river and Upper Augusta Township bound it on the north. The east side, therefore, drains either to the creek or to Spring Run, principally, however, to the run. Spring Run also naturally drains a greater part of the territory of the west side, although sewers therein divert some of the storm water to the river.

There are two incorporated sewer companies, five private sewers, six distinct sewer associates, and three public sewers in the borough whose outlets are into convenient water courses. It is estimated that eighty-eight hundred people are reached by this service, and thirty-two hundred people dispose of their sewage into streams, privies and cesspools. The sewers are combined, but their sizes being small, render them generally inadequate for the efficient removal of the storm water. Their outlets, with few exceptions, are provided with flood gates to prevent high river water back-flooding the sewers. During floods the sewage is stored up in the sewers, and in event of a rain occurring during such time, there is nothing to prevent sewage overflowing into the gutters of the streets after the sewers have become filled.

The public water supply is furnished by the Sunbury Water Company, which operates a mechanical filter plant. Part of the water supply is derived from Little Shamokin Creek, where it is impounded, and part of it is drawn from the Susquehanna River at a point near the west bank of the stream. There is a prejudice against the use of this water for drinking, and this suspicion of its purity, coupled with the water rates, is the reason alleged for the existence of scores of driven or dug wells in the borough, some of which are in proximity to cesspools and privies.

The railroads and manufactories consumes about one and a half million gallons daily, and about one million gallons daily are used by the inhabitants. As the borough grows probably the water company will draw more heavily upon the river.

Sunbury, while being the county seat, is essentially a railroad town. It is the division point of the Pennsylvania system for the Northern Central Railroad Company and the Philadelphia and Erie Railroad Company. It is the gateway to the Great Lakes region and to the northern anthracite coal fields. The repair shops, freight yards, round houses and offices for the divisions are here, and upwards of two thousand men are employed. The other great industry is the Susquehanna Silk Mills Company.

The assessed valuation of the borough is low and its borrowing capacity thereunder is nearly reached. About fourteen thousand dollars remains to be expended inside the statutory limitation.

About all of the west side, comprising the railroad district and the principal part of the borough, is served by sewers which empty into the river or Shamokin Creek. The location of these sewer outlets and the names of their owners, named in order from the upper part of the borough down stream, are as follows:

The sewers emptying into the river are eight in number. In the Fifth Ward, there is the Susquehanna Silk Mills sewer, thirty inches in diameter; the Pennsylvania Railroad sewer in Alice Street, twelve inches in diameter and in

Regan Street twenty-four inches in diameter, and the Susquehanna Sewer Company's sewer, eighteen inches in diameter; in the First Ward there is the Catharine Guyer sewer, twelve inches in diameter; the J. H. Harrison sewer, ten inches in diameter, and the P. H. Moore sewer, ten inches in diameter; in the Third Ward there is the Third Ward Sewer Company's outlet, in Church Street, twelve inches in diameter. Into Shamokin Creek there is the twenty-four inch sewer belonging to the Fourth and Arch Street Sewer Company which serves parts of the First, Second and Third Wards.

It is estimated that the above sewers serve a population of five thousand four hundred and fifty people.

The application of the Susquehanna Sewer Company, which is an investment concern incorporated under the laws of the State, and the application of the Third Ward Sewer Company, which is an incorporated co-operative association, for permission to extend the sewers, is now before the Department for consideration.

On July eighteenth, nineteen hundred and six, a petition signed by twenty-one taxpayers of the borough of Sunbury residing adjacent to Spring Run, between Arch Street and Woodlawn Avenue, and addressed to the Commissioner of Health, was received, representing that a nuisance existed in said Run and asking to have the nuisance abated. Upon investigation, it appeared that Spring Run has its source in a spring to the north of the borough in Upper Augusta Township, about two thousand feet above the borough line. Its flow is inconsiderable in the summer time.

The sewers discharging into Spring Run taken in order down stream are as follows:

In the Sixth Ward, J. H. Alleman sewer in Packer Street, twenty-four inches in diameter, the borough sewer in Masser Street, twelve inches in diameter.

In the Ninth Ward, from the east, two borough sewers, one in Race Street, ten inches in diameter, and one in Sixth Street, twenty-four inches in diameter.

In the Fourth Ward from the west, the Mary A. Lenker sewer in Chestnut Street, eight inches in diameter.

In the Seventh, Eighth and Ninth Wards, from the east, the East End Sewer Company's twenty-four inch sewer.

The three public sewers are of recent construction, they drain low, flat land and take storm water as well as sewage. In the order stated they serve one hundred, two hundred and three hundred people respectively, or thereabouts.

The Alleman sewer ordinance was passed in July, eighteen hundred and ninety-three, granting to Mr. Alleman and five associates, proprietors of the Edgewood addition to the borough of Sunbury, the right to lay sewers with an outlet in Packer Street to Spring Run. The ordinance prescribed the minimum sizes of the sewers, fixed the outlet at twenty-four inches in diameter and reserved the right to the borough to drain surface water into the sewers free of charge. Abutting property owners have the right to connect with the sewers by paying a tapping fee not exceeding twenty-five dollars for each dwelling, and fifty dollars for a hotel or business house. As soon as a sufficient sum is realized by the sale of tapping rights to re-imburse the associates for the actual cost of the sewers and interest on the investment, then the sewers shall become the property of the borough. A bond in the sum of five thousand dollars was required to remain in full force and effect until the sewers become the property of the borough to save the borough harmless from all actions or suits which may result from damages from any nuisance at any time created or resulting from the sewers. Two hundred people are now connected.

The Lenker sewer ordinance was passed September, eighteen hundred and ninety-one, giving the right to Mrs. Lenker to construct and maintain a private sewer in Chestnut Street to Spring Run. The usual borough stipulations and restrictions were waived in this case. One hundred and fifty people are connected.

The East End Sewer Company was incorporated under the laws of the State October twenty-first, eighteen hundred and ninety-eight, for the purpose of construction and maintenance of a system of sewers, conduits and under-drains in the borough of Sunbury, and the supplying of sewerage to such persons, partnerships and associations residing in said town, or adjacent thereto, as may desire the same.

The borough ordinance granting a franchise to the East End Sewer Company was approved September thirteenth, eighteen hundred and ninety-eight. The ordinance provides that each sewer shall be large enough to take sewage and surface drainage, the Borough Engineer to determine the proper grade. Abutting estates have the right and privilege of connecting with the sewer for the removal of sewage only at prices ranging from twenty-five dollars

for a six room dwelling to forty-five dollars for a ten room dwelling, for each hotel one hundred dollars and for stores or factories not exceeding eighty dollars each, the payment of these fees exempting the property owners from any further contribution for the use and maintenance of the said sewer. Instead of a lump payment for a connection, the property owner may be permitted by the Company to pay rentals, for each six room dwelling one dollar and twenty-five cents per quarter, for a seven room dwelling, one dollar and fifty cents, and for each additional room twenty-five cents per room per quarter; and for other connections special rates. The borough reserved for itself the right to turn in street drainage when not injurious to said system of sewers. Extensions to the system may be made when warranted by the growth of the town, and the borough council shall make and pass ordinances with adequate penalties for the protection and proper use of the sewers. The plan of the sewerage system approved shall, together with extensions hereinafter to be made, constitute the system, the main sewer of which shall be constructed within two years from the date of the ordinance under the supervision of the borough engineer. A bond in the sum of three thousand dollars was required, conditioned that the Sewer Company shall save the borough harmless from all damages or expenses occasioned by reason of being required to remove or abate any nuisance attributable to the construction or maintenance of said sewer. In case of the abandonment of the sewer system the borough council may become owners thereof, at their option, without compensation to the Sewer Company. The territory covered by the ordinance comprises the land east of Spring Run in that portion of the borough formerly known as East Sunbury.

Under this ordinance, or amendments thereto, three and three-fourths miles of sewers have been built, the smallest of which are eight inches in diameter. Two and three-fourths miles drain through the twenty-four inch outlet into Spring Run, at the Pennsylvania Railroad just above the flood gate on the railroad culvert on said run. The other mile of sewers drains through a fifteen inch pipe into Shamokin Creek, at a point three thousand feet above the point where Spring Run enters said creek, and about three hundred feet above the Silk Mills sewer which is twelve inches in diameter, and carries silk washings and sewage only. The twenty-four inch outlet, known as the Fairmount district sewer, serves sixteen hundred people, and the fifteen inch outlet known as the Wolverton district sewer, serves six hundred people. So in this territory there are twenty-two hundred people connected with the sewers out of a total estimated population of twenty-eight hundred. Therefore, twenty-five hundred and fifty people are connected with sewers having outlets into Spring Run. This quantity of sewage comprises the principal flow in Spring Run during the dry season.

The Silk Mills outlet is purely a private sewer. There are one hundred hands employed in the works. If for no other reason, this sewage and that from the Wolverton outlet has caused no nuisance because of the acid mine wastes and coal dust prevalent in the creek.

East Sunbury is a growing district, streets are being laid out and a good class of houses are being erected on the abutting land. Modern plumbing facilities are being provided in these dwellings and there is a demand for sewers in keeping with the growth of this part of the town. It is proposed to extend the sewers as required subject to the approval of the Commissioner of Health.

There is no choice in methods of improving the conditions existing along Spring Run. The exigencies of the case demand that sewage now discharged therein shall cease to be so discharged. The cost of converting the Run into a covered conduit of sufficient size and true grade to rapidly convey away from the premises all sewage and storm water is prohibitive.

The borough alone is not financially able to assume the expense of even a sanitary sewer down the run to Shamokin Creek. Neither is any one of the companies, yet the sewage from each one of the sewer outlets into Spring Run contribute materially to the nuisance therein, and no discrimination is permissible in bringing about an abatement of said nuisance. Clearly the owners of every sewer which pollutes Spring Run, together with the owners of the states whose sewage clandestinely pollutes the Run must not escape the prohibition against the discharge of sewage into said natural water course.

Therefore, it has been unanimously agreed that the borough council should be notified that some other method of disposal of sewage than into Spring Run must be planned and adopted. Furthermore, that the Sunbury Board of Health should be notified to prevent the discharge of garbage or rubbish or wastes of any kind into Spring Run, and that action should be taken necessary to effect a cleaning out of the existing channel of Spring Run, to which end the State Department of Health will gladly extend its co-operation. Furthermore, it has been unanimously agreed that the Sunbury Board of Health should be notified to stop private estates from sewerage into Spring Run, and that in keeping with these orders and in the interests of the public health, the East

End Sewer Company's application should be denied and that said company should be required to prepare a plan for some other disposal of the sewage than into Spring Run. It has also been unanimously agreed that a similar order be served on J. H. Alleman and on the owner of the Lenker sewer in Chestnut Street.

Evidently only by co-operation on the part of the borough and the owners of the said sewers, can a plan be devised whose attainment is practicable or accomplishment at this time. The borough's policy in supervising and limiting the character, office, extent and dimensions of the existing sewers, and in restricting the ownership, not only of the sewers which discharge into Spring Run, but of all of the sewers in the borough, contemplates municipal ownership and operation of a majority, if not all, of the sewers some day. At one time the council employed an engineer to devise a comprehensive sewerage system for Sunbury, and it was intended that sewers should be laid down in the public streets in general conformity with this plan, but for reasons unknown said plan has not been generally followed. The desultory, haphazard method of building sewers, regardless of system, cannot receive the sanction of the State authorities, in view of the fact that the future will require the collection of all the sewage of the borough at some common point and its purification before the liquid shall be emptied into any of the waters of the State. In anticipation of that time a general plan of sewerage embodying as far as possible and economical the existing sewers, should be devised and submitted to the Commissioner of Health for his approval. The outfall sewer of this system should be adapted to the needs of every sewer district in the borough, and every sewer company, private owner and associates should be ultimately compelled to connect therewith. Hence there are mutual interests which should materialize in hearty co-operation to bring forth the practical plan suggested.

The Sunbury sewage reaches the Marysville and Harrisburg water works intakes much of the time within twenty-four hours and hence is one of the menaces to the lives and health of the peoples of these municipalities who must rely upon the river water for drinking purposes. While the danger is minimized by the presence of certain precipitating agents and coal dust, nevertheless it is time that the borough supervision over sewer construction should forestall the ultimate treatment of the sewage.

The company is hereby informed that it has been unanimously agreed that the interests of the public health demand that the application of the East End Sewer Company to discharge more sewage into Spring Run be denied until said company shall have submitted a plan for some other disposal of the sewage than into Spring Run, and the date is herein fixed of August first, one thousand nine hundred and seven on or before which such plan shall be submitted for approval.

Harrisburg, Pa., November 1st, 1906.

SUNBURY, NORTHUMBERLAND COUNTY.

SUSQUEHANNA SEWER COMPANY.

This application was made by the Susquehanna Sewer Company of Sunbury and is for permission to construct a system of sewers for a part of the municipal territory and to discharge the sewage therefrom, untreated, into the Susquehanna River within the limits of said borough.

Sunbury is the county seat of Northumberland County. It is situated on the east bank of the main Susquehanna River, immediately below the confluence of the West and North Branches and is bounded on the North by Upper Augusta township, on the East and South by Shamokin Creek and on the West by the river. This territory is divided into two parts by Spring Run which flows southerly through the entire length of the borough. The Run parallels and is about one-half mile distant from the river and empties into Shamokin Creek about one mile above the mouth of the creek.

The part west of the Run which is the business section of the borough, is flat, and formerly most of it was subjected to inundation during river freshets, but now a levee prevents the overflowing. Flood gates on sewer outlets along the river front and on Spring Run where it passes through the railroad embankment, keep high water from backing up through them.

The part of the borough lying east of Spring Run between it and Shamokin Creek is hilly and drains into one or the other of these two streams. Sunbury's prosperity is dependent largely on railroad business, although two silk plants of the Susquehanna Silk Mills Company give employment to several hundred hands.

The borough is the gateway of the Pennsylvania Railroad system to the Lake region and to the northern anthracite coal fields. The repair shops, round

houses, yards and offices of several divisions of the Pennsylvania Railroad Company are here and upwards of two thousand men are employed. Should the rumored change of yards and repair shops from Sunbury to some other locality be effected, it would materially alter the increase in growth of the place. In one thousand nine hundred, the borough had a population of nine thousand eight hundred and ten. Thirty years previous the population was three thousand one hundred and thirty-one. Now it is estimated to be twelve thousand. A rapid future growth is not anticipated. Should no serious set back occur, probably twenty-two thousand for one thousand nine hundred and thirty is a reasonable figure. The water supply of Sunbury is furnished by the Sunbury Water Company, the principal source being impounded waters from the sparsely settled water shed of Little Shamokin Creek. The supply is filtered mechanically, and when it is inadequate from this source, water is taken from the Susquehanna River from a point near the west bank where its quality is better than elsewhere. This supply is also filtered.

It is estimated that ten thousand people are supplied with the public water. The other two thousand obtain their drinking water from wells.

At present there are three companies owning and operating sewers in Sunbury. One of them is co-operative and two are investment companies. Besides these sewers the borough has granted rights of way in the streets for ten other private sewers which have been built for the convenience of the owner or associates, although abutting estates have been permitted to connect. There are also three public sewers. The investment companies are incorporated under the laws of the State, and the borough has issued to them perpetual franchises. The co-operative company and associate rights revert to the borough when the owners thereof are re-imburshed for principal and interest on the investment.

The Susquehanna Sewer Company was incorporated August sixteenth, one thousand nine hundred and four, for the construction and maintenance of a sewer system and the supplying of sewer service in the borough of Sunbury. The same year the borough council passed an ordinance granting to said company the right of way to construct a sewerage system in the Fifth ward and district adjacent thereto, north of Strawberry Alley and West of Spring Run. Said sewerage system was to provide sanitary sewerage for the admission of surface water. The ordinance prescribes:

"That the said sewers, when constructed, shall be made of sufficient size and capacity to accommodate ordinary conditions of rainfall. The said company to be relieved from the reception of surface water at such points as can be readily drained through natural surface channels and at such points where the admission of the surface drainage would be injurious to said system by reason of the unusual amount of dirt and sediment deposited. In case any dispute shall arise between the borough and the said company as to the ability to drain surface water over the surface, for the relief of the said sewer, such dispute shall be referred to three arbitrators."

The ordinance still further provides:

"The said system of sewers may be discharged into the Susquehanna River at a distance of one hundred and fifty feet from the river bank * * * and shall be constructed of iron or concrete in such a manner as shall be approved by the borough regulator."

Section five of the ordinance is as follows:

"The said system shall, except as otherwise provided, conform with the plan of sewerage devised for the borough by W. H. Dechant, and known as the 'Dechant Plan' permitting, however, such modifications as to the extent of the said system as may be determined upon by the management of the said company. Provided, however, that there shall not be any modification of or departure from the said Dechant Plan which shall prevent the system constructed under and within ordinance from being merged with or united with the general system of sewers as provided in the Dechant plan, but the said system shall be capable of being connected with and merged into the said Dechant system, in the adjacent territory, if at any time in the future the said Dechant Plan shall be put into operation by the said borough, or by its authority. And in the event of the construction of a general system of sewers under the Dechant Plan, the said company shall make their system conformable and correct any non-conformity at their own proper cost and expense, provided that the said non-conformity shall not have been caused by the requirements of the within ordinance as to surface drainage."

This Dechant Plan was made about one thousand eight hundred and ninety at an expense to the borough of about a thousand dollars, so it is said. At the present time the plan cannot be found.

It is provided in section twelve that in case the abandonment of the said plant and sewer system by the said company, the borough of Sunbury shall become the owner thereof at the option of the borough council.

In the said Fifth Ward territory which is in the extreme northwest corner of the borough and contains the round house, shops and yards of the Pennsylva-

nia Railroad Company, and also one of the plants of the Susquehanna Silk Mill Company, there are at present four sewer outlets into the river. The tract is flat and because of the railroad fill and the river dyke there is no way for storm water to get out into the river except through said sewer outlets which take both sewage and storm water.

The dam across the river at the lower part of the borough known as the Shamokin Dam, which went out in the spring of one thousand nine hundred and four during the notable ice gorge, prior to its failure maintained ordinary high water five feet above its crest, and during high floods, from ten to thirteen feet. The elevation of the ground in Ward Five is from twelve to fifteen feet so that with the sewers ranging from two to eleven feet above the crest of the dam, ordinary high water back flooded part of the sewers, and high flood back flooded all of the sewers, unless the flood gates on the sewer outlets prevented it. The evidence goes to show that said flood gates accomplished their purpose. Since the dam went down the low water level of the river is six feet below the crest of the dam, and ordinary high water is about at the crest of the dam; hence the sewers for such stages of the river do not need flood gates but freshet stages will continue to back flood the sewers for their entire length if flood gates are not maintained.

Beginning at the upper part of the ward, and naming the sewer outlets in their order down stream, they are:

FIRST—A thirty inch pipe sewer in Adams Street from the Dye Mill of the said Silk Mills Company.

SECOND—A twelve inch sewer in Alice Street from the Pennsylvania round house and shops.

THIRD—A twenty-four inch sewer from the yards of the Pennsylvania Railroad down Regan street, including the sewage from the Druckemiller common sewer.

FOURTH—The eighteen inch sewer outlet at the foot of the alley near Line street belonging to the Susquehanna Sewer Company.

The dye works employ about three hundred hands. The sewerage carries off spent dye liquors and also sewage. The flow from this sewer occurs at irregular intervals on account of the drainage of dye tanks in a short space of time when such drainage becomes necessary. During the time spent dyes are being discharged into the river, a discoloration is noticed some thirty feet from the shore for two miles along the bank below the dye works' sewer outlet. Sometimes the color is blue or red or green, but usually a dark shade depending on the kind of dye used. It is lost when the river water is mixed with the acid waters of Shamokin Creek, the inky color of the creek obscuring the dye liquids. The total flow from the dye works daily is approximately five hundred thousand gallons.

The plant was constructed about three years ago and the company was permitted by the borough to lay the sewer. It is not designed to be a common carrier.

The right of way for the Alice street sewer was granted in May, one thousand eight hundred and ninety-three, to the Philadelphia and Erie Railroad, the borough reserving the right to drain surface waters into the sewer and exacting a five thousand dollar bond, conditioned that the company shall save the borough harmless from all actions, or any nuisance which may result from the said sewer. The company is authorized to exact a payment of a sum not exceeding fifty dollars for a private dwelling and one hundred dollars for a hotel, or place of business, the owner of which shall have the privilege to tap said sewer. The sewer outlet is carried for a distance of one hundred and fifty feet into the river from low water mark, and the mouth of the sewer submerged at least five feet below low water mark, or at least should be, to conform to the requirements of the ordinance. In fact, it does discharge below low water about thirty feet from shore.

So far as the Department is informed, there are few private estates connected with the sewer, it serving the railroad property chiefly. Probably two hundred men use the sewerage facilities in the shops. It appears the borough has not drained surface water into this sewer, but it does drain the yards in the vicinity of the shops and round house.

The Regan street sewer right of way does not appear to be a matter of record. It is said to belong to the P. and E. Railroad, and it is known to drain the low points in the railroad yards. Immediately east of the railroad is the Druckemiller tract. The borough granted an ordinance in October, one thousand eight hundred and ninety-two, for a common sewer in Third and Regan streets to a low point on railroad land from which the water flows into a basin, and from thence into Spring Run. Now the main sewer is ten inches in diameter, empties into the Regan street sewer of the same size. Possibly one hundred people are connected with this sewer.

The Susquehanna Sewer Company's outlet sewers a complete system of streets between the railroad and the river in the southern part of the borough.

There are seven thousand two hundred feet of sewer in the system, ranging in size from eight to eighteen inches, and serving about eleven hundred people. The sewers are used as a combined system and street water is introduced wherever convenient. The area drained is forty-five acres, the streets are unpaved and in times of storm as would be expected, the sewers are totally inadequate to remove storm water, so it ponds up in the street gutters. At the south end of the ward there are two basins, formerly used as basins on the canal before the railroad was built. They drain into Spring Run. The water in these basins is stagnant, covered with green scum, a good breeding place for mosquitoes, and rises and falls simultaneously with the river although there is no direct connection.

In the northern part of the borough at present there are no public sewers. There are about six hundred people living here and they have privies for the disposal of sewage, also cesspools. The Susquehanna Sewer Company purposes to build a system of so-called combined sewers for this territory with a twelve inch sewer outlet into the river opposite Joseph street extended about midway between the dye mill sewer and the round house sewer. It is not proposed to build any manholes. The minimum grade is three-tenths per cent. and the sizes are to range from eight to twelve inches in diameter. These sewers will reach about all existing houses and a population of about five hundred people.

No site favorable for a sewage disposal plant is to be found in Ward Five, if remoteness from dwellings and industrial institutions and developments is to control a selection.

Since the sewers in this district are not and never were owned or maintained by the municipality, they are not exempt from the provisions of law which prohibit the discharge of sewage into any waters of the State; but they are in a class of sewers whose owners may continue to so discharge such sewage unless in the opinion of the Commissioner of Health such discharge may become injurious to the public health.

It would probably work disaster to the borough to require the dye works output to undergo treatment. The sewage from this plant might be separated from the dye liquids and be disposed of independently and the dye stuff be permitted to flow into the river. This would effect a saving in cost and remove pathogenic poison.

The Pennsylvania Railroad Company's sewer in Alice street was built under borough authority which prescribed the river as the place of disposal, which authority carried presumed security and prescriptive right to such disposal; but the borough's reservation placed all liability for damages or nuisance from discharging sewage into the river upon the railroad company. The owners of the common sewers in the Druckemiller tract would probably relinquish the sewers to the borough, if the river outlet were discontinued, on the score of inability to provide other disposal of the sewage.

The Susquehanna Sewer Company is not in a position financially to assume the expense involved in discontinuing the present sewer outlet into the river, so were this required, probably the said company would give up its rights to the sewers.

Were all of the existing sewers to be placed in the care of the borough, matters would not be more easily adjusted so far as affecting a discontinuance of sewage discharge into the river because the borough is within fourteen thousand dollars of its borrowing capacity, and this sum would be entirely insufficient to pay for the interception of the sewage of the existing common sewers in the district. Unfortunately, Sunbury is level and spread out so that to collect the sewage from all of the sewers in the borough and to reach a secluded point for purification works for the whole or any part of the territory of the municipality, involves expensive sewers, one or more pumping stations, and a very large expenditure of money.

It appears that the municipal authorities contemplate the possibility of a general sewerage system and a plan was once prepared therefor. It does not appear, however, that any well devised general scheme has been followed in the sewers laid down under municipal sanction. The policy pursued has been to obtain public sewerage service and street drainage at the same time free of expenses to the borough. Because the cost of storm sewers adequate in size was prohibitive, the individuals given sewer rights were permitted to construct sewers whose sizes were but little larger than necessary for sanitary purposes and altogether too small for drainage purposes. So to-day the sewers are ill adapted to conform to a general sanitary sewerage project. In consequence of this policy, it is inexpedient to inaugurate a reform in method unless it shall include all of the territory of the borough.

The existing sewers in Ward Five now serve sixteen hundred people. The proposed sewers will add five hundred to the number. The floating matters discharged from the sewers pass down stream along the shores to the Shamokin dam in the lower part of the borough and here there is a pool and eddy formed

by a part of the dam still in existence from the shore outwards. Complaints have been formerly made to the State Health Commissioner about this nuisance and the request is made that the portion of the dam nearest the shore be ordered removed so that a channel way may be provided to obviate stagnant water and assure the passage of all sewage matter down stream.

In view of the fact that a very considerable number of people need sewerage facilities in Ward Five, and because it does not appear that the discharge from the proposed sewers will materially increase the pollution of the Susquehanna River, and because it is infeasible to require the owners of sewers in the district or the borough to purify the sewage, at this time, it would seem expedient to grant said extension provided the sewers were built to conform to a plan for the ultimate abandonment of said company's outlets into the river. It is feasible instead of building the proposed new outlet into the river at Joseph street to convey the sewage of the proposed sewers southerly in a street paralleling the river and empty it into one of the sewers now in existence in the south end of the ward and owned by said sewer company. Such an expedient would permit the interception of all of the domestic sewage in Ward Five to a point in the extreme south part of the ward where it can be more economically delivered into a general sewerage system of the borough.

Because of this and other considerations it has been unanimously agreed that the interests of the public health demand that permission be granted and it is herein granted to the Susquehanna Sewer Company to construct the proposed sewers in Ward Five under the following conditions and stipulations:

FIRST: That the proposed sewers shall not discharge into the Susquehanna River at Joseph street, but they shall empty into the sewer or sewers of the said Susquehanna Sewer Company which have an outlet into the river near Line street, and a plan thereof shall be submitted to the Commissioner of Health for approval before said sewer extension shall be made.

SECOND: That proper manholes shall be constructed on the sewers at street intersections and at every change in line and grade, and that a plan of the sewers built during the year showing the location, size and grade shall be prepared and submitted to the Commissioner of Health at the close of each season's work.

THIRD: If for any reason the sewer system or any part thereof, or the discharge of sewage into the river, shall have become a nuisance or a menace to health, in the opinion of the Commissioner of Health, then the said Sewer Company shall adopt such remedial measures as the Commissioner of Health may suggest or approve.

FOURTH: On or before August first, one thousand nine hundred and seven, the Susquehanna Sewer Company shall prepare a plan, either independently or jointly with the borough or other sewer owners, for some other disposal of the sewage than into the Susquehanna River. Said plan to be submitted to the Commissioner of Health for his approval.

FIFTH: This permit to discharge sewage into the Susquehanna River shall cease on August first, one thousand nine hundred and seven. If at that time the provisions of this permit shall have been complied with, then the Commissioner of Health may extend the time, if, in his opinion, the interests of the public health demand it.

SIXTH: No pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

SEVENTH: This permit is granted under the express stipulation that all laws and ordinances not conflicting with the terms of this permit, shall have been first complied with in so far as they regulate and control the business which the Susquehanna Sewer Company is authorized to engage in.

Special attention is called to the fact that this permit is granted because the proposed sewers are to be built but slightly larger than is necessary to convey sewage alone.

Harrisburg, Pa., November first, 1906.

SUNBURY, NORTHUMBERLAND COUNTY.

THIRD WARD SEWER COMPANY.

This application was made by the Third Ward Sewer Company of Sunbury, and is for permission to extend its sewer system and to discharge the sewage therefrom, untreated, into the Susquehanna River within the limits of the borough of Sunbury.

It appears that the borough of Sunbury stretches along the east bank of the Susquehanna River from the junction of the North and West Branches of Shamokin Creek, a distance of about two and a half miles. It is divided into *two parts by a spring run*, which flows approximately parallel to the Susque-

hanna and about one-half mile therefrom, and empties into Shamokin Creek one mile above the mouth. The part of the borough between the river and Spring Run is flat and during extreme high water a large part of it is below the water level of the river and would be inundated except for the levee on the river front and the flood gates where Spring Run passes through the railroad embankment. The outlets of the sewers along the river front are also provided with gates to prevent the river waters from backing up through them.

Ward Three is in the extreme southwestern corner of the borough lying between the Pennsylvania Railroad and the river. It is one-quarter of a mile wide and one and one-quarter miles long on the river. In this tract there are no manufactories of importance, but the division yards of the Northern Central Railroad Company occupy about one-third of the area of the ward and are in the southern part thereof. The northern half of the ward is well built up, containing probably seven-tenths of the total population, which is approximately two thousand. Generally speaking, the dwellings are owned by the less resourceful class.

At present there are three companies owning and operating sewers in Sunbury, two are investment companies, namely, the Susquehanna Sewer Company and the East End Sewer Company, and one of them is co-operative, bearing the name of the Fourth and Arch Street Sewer Company. The first two are incorporated under the laws of the State. Besides these sewers, the borough had granted rights of way to individuals or associates for ten other sewers and connections. There are also three public sewers. The co-operative company and the associate rights may revert to the borough when the owners are reimbursed for principal and interest on the investment.

Beginning at the upper end of the borough and coming down stream in succession are Wards Five, One and Three, and the sewer outlets into the river in their respective orders are: in Ward Five, four separate outlets, of which the last one is eighteen inches in diameter and is for the system belonging to the Susquehanna Sewer Company; the other outlets being private sewers also; in Ward One, the Catharine Guyer Sewer in Mulberry Alley, also the J. H. Harrison sewer in Mulberry Alley and the P. H. Moore sewer in Barberray Alley; and in the Third Ward, the Church Street sewer outlet of the Third Ward sewer system.

The extension of sewers in Ward Five by the Susquehanna Sewer Company is the subject of application by said company to the Commissioner of Health for approval, as required by law. Naturally, the determination of public policy by the Commissioner of Health with respect to one sewer outlet into the river along Sunbury shore line would obtain with respect to all of the sewer outlets along the said water front. It is in a general way only that present sewerage facilities outside of Ward Three have any bearing on the petition in hand, but this consideration is important.

All three of the above mentioned sewers in Ward One were built under borough sanction.

The Catharine Guyer sewer ordinance was passed July eighth, eighteen hundred and ninety, for the construction of a common sewer from the Philadelphia and Erie Railroad passenger station down Third street and Mulberry alley to the river, the borough reserving the right to connect with the sewer free of charge, the sewer to be not less than twelve inches in diameter, residents to have access to said sewer by payment to said Guyer the sum of one hundred dollars for each business house or hotel, and for each private residence, the sum of fifty dollars. The ordinance further provides that the grade of the sewer shall not be less than three inches to one hundred feet, and that there shall be a valve placed in the sewer pipe on Front street. Section four of the ordinance reads as follows:

"That Mrs. Guyer will after she has received from other parties tapping said sewer enough money at the above provided rates to reimburse her for all expenditures in the laying of the sewer, less the sum of one hundred dollars, abandon all claim to the title thereto, and turn the same over to the borough authorities, subject to the right of all parties that have in the meantime connected herewith."

There is no option in this case; the borough must assume responsibility and operate this sewer when the conditions mentioned in Section four of the ordinance shall have been complied with.

The J. H. Harrison sewer ordinance was approved September eleventh, eighteen hundred and ninety-four, the borough reserving the right to drain surface water into the sewer and requiring a bond to be given to save the municipality from all actions or suits which may result from the construction or maintenance of the sewer. The ordinance gave privilege of private tapping to the sewer and fixing the price therefor. This is purely a private sewer and does not revert to the borough. It was built principally to serve the county jail.

The Moore sewer, known as the Clement House sewer, ordinance was passed September fifth, eighteen hundred and eighty-three, which provides for a common sewer to which the borough shall have a right to connect, otherwise there are no restrictions. Subsequently it became a public sewer.

The Third Ward sewer ordinance was passed August, eighteen hundred and ninety-five, and amended February, eighteen hundred and ninety-six, granting the right to Honorable C. R. Savidge and four others to lay sewers on certain streets and alleys in the borough with an outlet into the river at the foot of Church street, provided the borough shall have a right to drain surface water and sewage into said sewers, and that residents shall have the right to connect with the sewer by paying to the owner thereof twenty-five dollars for each single residence, and fifty dollars for each place of business, and still further providing that as soon as a sufficient sum is realized by the sale of rights to tap into said sewers to reimburse the owners for the actual cost of the sewers, together with interest thereon, the said sewers shall become the property of the borough of Sunbury. The ordinance still further provided for a bond to remain in force until the sewers revert to the borough to save the municipality from any damages created by or resulting from said sewers. The owners were required to render accounts to the council of all expenditures and receipts for each preceding year. A stop valve was specified to be placed in the outlet sewer to prevent backflooding from the river, and the outlet shall be extended below low water mark and at least one hundred feet from the shore line.

There are four thousand two hundred feet of sewer in this system and about eight hundred people are served thereby. The sewers are too small to take off storm water and frequent overfloodings occur. There are forty acres tributary to the outlet sewer.

On the three sewers emptying into the river from Ward One there is a tributary area of twenty-three acres; and a total population served by five hundred and fifty people.

There are two other sewers in Ward One starting near the river and draining easterly to a sewer main in Fourth street which empties into Shamokin Creek. This outlet serves the territory on the north and east of Ward Three, comprising parts of Ward One, Ward Two and Ward Four, is the largest sewer system in the borough and is owned by the co-operative company known as the Fourth and Arch Street Sewer Company. The ordinance therefor was passed January, eighteen hundred and ninety-four, the borough reserving the right to drain surface water into the system free of charge, and requiring the company to permit residents to tap the sewer at stipulated prices, and the system to become borough property after the sewer company shall have been reimbursed for the outlay in constructing the system. A bond was required to save the borough harmless and the company was prohibited from building the main pipe sewer less than twelve inches in diameter.

This system was built with a twenty-four inch outlet into the creek which it enters a few hundred feet below Spring Run. The sewer drains an area of eighty acres approximately and connected with the system are twenty-five hundred people out of a total population of thirty-three hundred, estimated.

It is stated unauthoritatively that the sewer company has been reimbursed for the construction of this system, but that the borough does not accept the responsibility of maintaining the sewers. There seems to be no option in the ordinance.

So it seems that with one exception the sewers in and surrounding Ward Three have reverted or will revert to the borough.

The company purposes to build a sewer on River alley southward from Linden street, and northward from Garinger street to Hopper alley and westward in said alley to the Susquehanna River, the outlet to be about four hundred feet above the site of the Shamokin dam. The sewer is to range in size from eight to eighteen inches in diameter and evidently is to take storm water as well as sewage. River alley is parallel to the river immediately back of the dwellings fronting on the river, and the proposed sewer in this alley is thirty-three hundred feet long, and the Hopper alley outlet to low water three hundred and fifty feet long. This sewer will reach most of the dwellings in the southern part of the ward, and it is expected that five hundred people will be connected with the service at the expiration of the first year after the sewer is built.

A supplementary ordinance to the original ordinance granted to Honorable C. R. Savidge and four others in August, eighteen hundred and ninety-five, was passed and approved during the summer of nineteen hundred and six, which provides, among other things, as follows:—

"Beginning at the intersection of Linden street and River alley, there connecting with the present established line of sewer of the grantees herein, thence south on River alley (the distance of 940 feet with a 10 inch pipe) to Lombard street, thence continuing south along River alley and through Shippe street (the distance of 1,000 feet with a 12 inch pipe) to the southern terminus of the said Shippe street, thence along River avenue (the distance of 645 feet with a 15 inch

SEVENTH: This permit to discharge sewage into the Susquehanna River shall cease on August first, nineteen hundred and seven. If at that time the provisions of this permit shall have been complied with then the Commissioner of Health may extend the time, if, in his opinion, the interests of the public health demand it.

EIGHTH: No pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

NINTH: This permit is granted under the express stipulation that all laws and ordinances not conflicting with the terms of this permit shall have been first complied with in so far as they regulate and control the business in which the Third Ward Sewer Company is authorized to engage.

Harrisburg, Pa., October 29th, 1906.

STATE HOSPITAL FOR THE FEEBLE MINDED AND EPILEPTIC, CHESTER COUNTY.

This application was made by the Trustees of the Eastern Pennsylvania State Institution for the Feeble Minded and Epileptic, Spring City, Chester County, Pennsylvania, and is for permission to install a sewer system and sewage disposal works and to discharge the sewage therefrom into the Schuylkill Navigation Company's canal within the limits of the property of the State of Pennsylvania in East Vincent Township, Chester County.

It appears that the tract of land selected by the Commission for the erection of the Institution is well adapted to the preservation of the health of the inmates of said institution. The natural facilities for drainage are most excellent. The buildings are located on an eminence whose elevation is over one hundred feet above the valley of the Schuylkill, and from which a commanding view is had of the valley which half encircles the tract. At the foot of the hill is the Schuylkill Division of the Pennsylvania Railroad system, and between the railroad and the river is the canal of the Schuylkill Navigation Company. This portion of the State property is flat and about one thousand feet wide.

The Institution is designed to provide for one thousand inmates, but buildings for half this number only are now being erected. The Institution is to be on the colony plan. Storm water drainage is to be provided in conduits designed for this purpose only. All of the sewage is to be collected in separate pipes and delivered at one point at a manhole from whence it is to be conveyed down the hill in an eight inch sewer for a distance of six hundred and eighty feet to septic tanks to be covered over and hidden from view and located near the railroad. From here the sewage is to be carried in a sewer underneath the railroad to filter beds to be located on the higher ground bordering the flats and distant about one hundred and fifty feet from the railroad. A sludge bed is also to be located here. The effluent from the filter beds is to flow through an open trench across the flats, a distance of about seventeen hundred feet to the canal. The flats are occasionally inundated. The Department does not know the freshet height at this point.

The sewers are to be built with absolutely tight joints and be provided with manholes at proper intervals.

There are to be three septic tanks built of concrete and covered over, arranged side by side and each forty-one feet long, fourteen feet wide and six feet deep from the flow line, inside dimensions.

From a gate chamber, a short distance from the tanks into which the sewage from the Institution is to flow by means of three pipes and three gates, the sewage will be diverted by choice, either into any one or all three of the tanks.

Between the flow line and the roof of the tank there is to be a space of twelve inches. No vents are provided for the roof, but manhole covers at the inlet and outlet ends of each tank are shown on the plan. The sewage will enter each tank by a submerged pipe. Extending across the entire width of the tank and three feet from the inlet end, and also three feet from the outlet end is to be a curtain wall extending from the roof downward to within four feet and three feet respectively of the bottom of the tank.

The floor of each tank is to be channelled diagonally to a point in the centre of the side where a six inch sludge draw-off pipe is to be provided in the concrete floor. There will be one of these drain pipes from the bottom of each tank to a chamber at the side of the outer tank where gates are provided, one on each sludge pipe. A twelve inch sewer pipe will lead from this sludge chamber across the railroad to a sludge bed.

The capacity of each tank is about twenty-five thousand gallons, so that at the estimated flow of the sewage from the Institution for the present of fifty thousand gallons daily, the entire volume in each tank will be displaced twice

in twenty-four hours if one tank is used, or once in twenty-four hours if two tanks were used, or once in thirty-six hours only if all three tanks were used. In the future, when the daily output is one hundred thousand gallons the displacements would occur twice as frequently.

Not over two tanks should be used at present, and one tank preferably. The Department is not in possession of any statement as to how the tanks are to be operated.

At the outlet end of the tanks, the effluent will discharge through an eight inch pipe which will connect with the sewer leading to the dosing tank.

It is proposed to build a sand and gravel sludge bed to have a surface of fifty feet by fifty feet and a depth of coarse sand and fine gravel of four feet. The bed is to be excavated in earth and to have slopes on the sides of one to one. The sludge is to be discharged on the surface of the filter from the centre of one side where is to be built a concrete apron five inches in thickness, semi-circular with a five foot radius, laid just above the surface of the sand on to which the sludge is to be received and in turn to be distributed over the filter surface. The bed is to be underdrained by six and four inch pipes. The main drain connects with the ditch which is to discharge the effluent into the canal.

No mention is made of how often it is proposed to empty the septic tank sludge on to the sludge beds. The elevation of the bottom of the tanks is one hundred and twenty-nine, and the elevation of the surface of the sludge beds about one hundred and fourteen and the distance between them being two hundred and thirty feet, it appears that there will be ample fall to secure a flushing velocity in the pipe. But if the deposits in the tanks are not removed oftener than once every year or so, which is as often as experience may prove to be necessary, the character of the deposit may be of such a gelatinous nature that fifteen inch drain pipes might not afford any too good facilities.

It is proposed to collect the septic tank effluent in a dosing chamber at the filter beds. This tank is to be open with masonry sides and bottom, to be thirty-five feet square and about four feet deep at the inlet flow line, and the bottom sufficiently above the surface of the filter to permit of the emptying of the chamber by means of an eight inch Miller syphon, with a twelve inch outlet to the filter beds. By gates provided for the purpose, it will be possible to control the flow of sewage, and send it upon either one or both of the filters. The capacity of this dosing tank as it is intended to be used is thirty thousand gallons. There is to be a drainage pipe for the emptying of the tank if necessary.

The sand filters are to be side by side, each to be one hundred and seventy-two feet long and one hundred and three feet wide. Excavations are to be made in the earth with side slopes and an embankment dividing the two filters. The filtering material is to be three feet minimum depth, and is to consist of sand. The sewage is to be discharged on to the surface of the beds by a system of twelve inch pipes with laterals laid thirty feet apart. The distributing pipes are to have open joints. Each bed is to be underdrained by an eight inch main with four inch connections, laid in valleys excavated on the bottom of each bed. The underdrains will connect with an open ditch leading through the meadow to the canal.

At the present time, the rate of filtration on one bed may be one hundred thousand gallons per acre daily. When the sewage output is double what is anticipated for the immediate future, the rate of one bed will be about two hundred thousand gallons per acre daily. Ultimately, when the population reaches its maximum, additional beds will have to be built.

The Commissioner will endeavor to obtain permission of the Lehigh Navigation Company to discharge treated sewage into the canal. A few hundred feet below the point where the open ditch is to discharge the sewage effluent into the canal, there is an overflow gate into the river. The river surface is about six feet lower here. This gate is provided for flood periods in the canal.

Half a mile or so below the outlet gate, and on the opposite side of the Schuylkill River in the borough of Royersford, is the pumping station and inlet of the Home Water Company of Royersford, which company supplies filtered river water to Royersford borough and Spring City borough.

About half a mile above the said proposed effluent ditch to the canal, there is a lock in the canal. In the neighborhood of three and a half miles below this lock there is another one intervening, and at least a mile below the State property is the borough of Spring City, three thousand population. Between the lower lock and Spring City is a station for the manufacture of electric light by water power derived from the canal. The light is furnished to Royersford, Phoenixville and Spring City. This use of the canal creates a current therein, reaching at times perhaps four miles per hour.

The effluent from a well designed, properly constructed and operated sand filter will sufficiently purify the sewage to the extent that the complete nitrification of organic matter emanating from the disposal works would be readily

Below Sayre, Athens, Towanda and Tunkhannock discharge into the Susquehanna River. Ninety miles below Sayre the city of Wilkes-Barre has an emergency intake into the Susquehanna River.

It has been unanimously agreed that the interests of the public health require that permission be given to the borough of Sayre to construct, maintain and operate a system of sewerage according to the amended plans now on file in the Department, on the following conditions:

FIRST: That the borough of Sayre may adopt and construct a system of sewers according to the plan now on file in the Department for the sewerage of all of the territory of the borough and the collection of all of the sewage thereof, either from public or private sewers, and its conveyance to one common outlet where the sewage shall be treated when required by the State Commissioner of Health.

SECOND: That the sewage from this system may be discharged into the Susquehanna River until three years from the date of this permit on or before which time the borough shall prepare and submit plans for the treatment and purification of the sewage of said system and submit said plans to the Commissioner of Health for his approval.

THIRD: That on July first, one thousand nine hundred and nine, provided the borough of Sayre shall have complied with the above condition, the Commissioner of Health may extend the time in which the sewage of the borough may be discharged into the Susquehanna River, and determine when the said sewage disposal works shall be built.

FOURTH: That storm water and roof water shall be excluded from the sewer system. Separate conduits for sewage and separate conduits for storm water being required.

FIFTH: That the sizes of some of the main sewers may be reduced with safety, it to be optional with the local authorities having by law charge of the sewer system.

SIXTH: That flush tanks may be eliminated from the system and in their place may be substituted manholes to be used as flush tanks and plugs to be inserted in the sewer pipes and to be withdrawn by hand when the manholes have been filled with water from the nearby public water main.

SEVENTH: That plans of the sewers giving sizes, elevations and grades, together with a statement of the number of buildings connected therewith, shall be prepared and filed with the Commissioner of Health at the close of each year so that an accurate record of all of the sewers of the system built to date will be on file with the Department, and, therefore, the attention of council is called to the advisability of appointing an officer whose duty it should be to superintend the sewerage system and all matters appertaining thereto.

EIGHTH: That no pathological material from any laboratory shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., June 12th, 1906.

SHARON HILL, DELAWARE COUNTY.

This application is for permission to discharge sewage into Darby Creek from a new sewer system designed and constructed prior to April twenty-second, nineteen hundred and five.

The questions involved in the consideration of said application are those of the greater problem of improving condition of all the streams in Darby Creek Valley, which problem is so extended that its solution cannot be reached in time to relieve Sharon Hill's immediate necessities.

It appears that Sharon Hill is a small residential suburb of Philadelphia, distant about seven miles therefrom. The area within the borough limits is but little over one-half square mile. It now contains upwards of two hundred dwellings, an educational institution, and a population of from twelve hundred to fifteen hundred people.

Darby Creek, the easterly boundary of the corporation, has its rise in Easttown Township, fifteen miles above Sharon Hill, and six miles below it empties into the Delaware River at a point about two and one-half miles above the city of Chester. This city takes its water supply from the river.

On the Darby Creek water shed above Sharon Hill—of thirty six square miles—there is an estimated population of fifteen thousand people. The sewage from the boroughs of Darby, Yeadon and Lansdowne, having a combined population of over five thousand, is now and has for some years been discharged into the Creek within two miles above the proposed Sharon Hill sewer outlets.

A few hundred feet below these proposed outlets, Darby Creek is joined by Cobbs Creek, a stream rising in Lower Merion Township, and also draining a part of the city of Philadelphia. It receives manufacturing wastes and

sewage. There appears to be no town or village settlement on Darby Creek below Sharon Hill.

The flow of the stream is comparatively small. The population of the water shed is steadily increasing, and in consequence the creek pollution must also be increasing.

The sewer system of the borough was adopted and under construction or the contracts let therefor, prior to April twenty-second, nineteen hundred and five. The present district comprises about two hundred and seventy-five acres. No house connections have yet been made with it. The sewers are designed to exclude storm water.

The system has two outlets—both being within two hundred feet of each other—into Darby Creek near the P. W. & B. R. R., in the southeast corner of the borough. These outlets are twelve inches and twenty-four inches in diameter. Further extensions of the system will probably be required in the future.

With this understanding of the facts obtaining at Sharon Hill, and in view of the size of the water shed, its increasing population and the pollution of the stream it is evident that the sewage disposal problem of the entire Darby Creek Valley must be carefully considered and a general policy of improvement of the stream condition determined upon. Until this can be done it should do no measurable harm to temporarily permit the small amount of sewage output from Sharon Hill to be added to the already sewage polluted creek.

In fact, to withhold such a permit might create a worse state of affairs than to allow the stream to remove the sewage from the immediate vicinity of dwellings.

Therefore, since it is impracticable at this time to determine upon a comprehensive plan applicable to the whole of Darby Creek Valley, it seems expedient to hold over the matter of sewage treatment at Sharon Hill until such a time as the Commissioner of Health may be able to determine the best plan. And in consequence, therefore, efficiency, economy, and the general interests of the public health require that the desired permission be granted, and it is hereby granted to the borough of Sharon Hill to discharge sewage into Darby Creek as requested, upon the following conditions:

FIRST: That the plans of the entire borough be submitted at once to the Commissioner of Health showing the entire area sewered and ultimately to be sewered, giving sizes of sewers, their elevations and grades, materials, manholes, the elevation of street surfaces, accompanied by a full description of the method of ventilating and flushing the sewers.

SECOND: That detailed plans and elevations of the sewer outlets and the Creek at the outlets be also submitted, and that any alterations therein shall be made upon direction of the Commissioner of Health.

THIRD: That the borough authorities shall not permit the entrance of storm water into the sewer system, except upon permission to be obtained from the Commissioner of Health.

FOURTH: That no pathological material from any laboratory shall be discharged into the sewer system. The proper authorities shall cause these wastes to be incinerated on the premises.

FIFTH: That such further and complete information relative to the sewer system and sewage disposal as may be required of the municipal authorities by the Commissioner of Health shall be given without delay when required.

SIXTH: That the sewer system shall be properly and sufficiently flushed, ventilated and maintained, and an accurate record of all house connections be kept, together with the plans and profiles of the sewers built, and filed with the borough authorities.

SEVENTH: That the treatment or further disposal of sewage shall be undertaken by the municipal authorities at any time when so ordered by the Commissioner of Health and according to plans to be submitted to and approved by him.

Harrisburg, Pa., October 18th, 1905.

SELINS GROVE, SNYDER COUNTY.

This application was made by Hon. H. M. McClure for a modification of the permit for the extension of sewerage in the borough of Selins Grove, issued by the Commissioner of Health, and dated December second, one thousand nine hundred and five, and recorded in the Snyder County office of the Recorder of Deeds in Miscellaneous Book seven, page one hundred and twenty-four. Said application is as follows:

"Samuel G. Dixon, M. D.,
Commissioner of Health of the Commonwealth,
Harrisburg, Pa.

"Sir: I have the honor to request a modification of the permit issued by your Department December 2nd, 1905, and recorded in Snyder County in the office of the Recorder of Deeds in Miscellaneous Book No. 7, page 124, in the following particulars:

"Referring to so much of the decree as determined that the Snyder street sewer outlet should be abandoned, I would respectfully request that the decree be modified as follows:

"The Snyder street sewer outlet to continue as at present, except that the one privy connected therewith shall be disconnected and an earth closet substituted therefor, and no additional connection with said sewer shall be made.

"Referring to so much of said decree as provided that suitable manholes and flush tanks shall be installed on the entire sewer system, I would respectfully represent that vertical pipes are connected with said sewer at intervals of about five hundred feet, and said pipes opening into the sewer being of six inch pipe and for the purpose of examination and inspection by lowering lanterns into the sewer and examining from one such opening to the other; that the sewer itself is only of eight inch diameter and therefore a manhole could not be used and that flush tanks would be more expensive than is justified by the amount of sewage discharged by the borough of Selins Grove and would be burdensome upon the owners of the sewer.

"It is submitted that through these vertical pipes the sewer can be properly flushed and that such pipes furnish ample provision for the use of hose in clearing the sewer, and I therefore request a modification of the first condition of the permit as follows:

"The first condition of the permit requiring suitable manholes and flush tanks to be installed on the entire sewer system is withdrawn and it is stipulated that the owners of the sewer shall maintain a supply of hose and use the same for the flushing and cleansing of the sewer whenever necessary through the vertical pipes heretofore erected, which it is adjudged will answer the purpose of manholes under the circumstances.

"I further request that the second condition of the decree requiring the submission of plans on or before October first, nineteen hundred and six be so modified as to require that such plans are to be presented upon six months' notice from the Commissioner of Health.

"If your Honorable Department will make the modifications requested thereupon, the pending appeal in the Court of Common Pleas of Snyder County will be discontinued.

"Very respectfully,

"H. M. McCLURE.

"Lewisburg, Pa., May 14th, 1906."

It appears that the terms of the permit of December second, one thousand nine hundred and five were as follows:

"It has been determined that the Snyder Street sewer outlet shall be abandoned at once, and that the interception of all the sewage of the borough should be brought about.

"In conformity with these objects it is determined that the interests of the public require that permission be granted to Hon. H. M. McClure to extend the present sewer system in Selins Grove as follows: Seven hundred and fifty feet eight inch sewer south in High Street from Walnut; three hundred feet of eight inch sewer north in High Street from Walnut on the following conditions:

FIRST: That suitable manholes and flush tanks shall be installed on the entire system.

"SECOND: That on or before October first, nineteen hundred and six, a plan for some other disposal of the sewage than the one now in use shall be prepared and submitted to the Commissioner of Health for his consideration.

"THIRD: That no pathological material, etc."

It will be seen that the second condition will, as modified, remain the same as formerly with the substitution of the words "six months notice from the Commissioner of Health" for the words, "on or before October fourth, nineteen hundred and six."

It will be further seen with regard to the first condition that instead of the words "that suitable manholes and flush tanks shall be installed on the entire sewer system," the following words are to be substituted, "that the owners of the sewer system shall maintain a supply of hose and use the same for the flushing and cleansing of the sewer whenever necessary through the vertical pipes heretofore erected and connected with said sewer system."

Still further it appears that the manner in which the Snyder Street sewer outlet shall be abandoned is to be expressly stated, viz: "the Snyder Street sewer outlet shall continue as at present, except that the one privy connected therewith shall be disconnected and an earth closet substituted therefor, and no additional connection with said sewer shall be made."

These modifications or alterations do not change any vital principle involved in the original permit and they make the conditions more acceptable to the owners of the sewer system, therefore, it is unanimously agreed that the permit issued by the Commissioner of Health, December second, one thousand nine hundred and five, and recorded in Snyder County in the office of the Recorder of Deeds in Miscellaneous Book No. seven, page one hundred and twenty-four, be modified to read as follows:

"It has been determined that the Snyder Street sewer outlet shall continue as at present, except that the one privy connected therewith shall be disconnected and an earth closet substituted therefor, and no additional connection with said sewer shall be made."

It has been determined that the interest of the public health requires that permission be granted to Hon. H. M. McClure to extend the present sewer system in Selins Grove as follows:

Seven hundred and fifty feet eight inch sewer south in High Street from Walnut; three hundred feet eight inch sewer north in High Street from Walnut on the following conditions:

FIRST: That the owners of the sewer system shall maintain a supply of hose and use the same for the flushing and cleaning of the sewers whenever necessary through the vertical pipe heretofore erected and connecting the said sewer system.

SECOND: That on six months' notice from the Commissioner of Health, a plan for some other disposal of the sewage than the one now in use shall be prepared and submitted to the Commissioner of Health for his consideration.

THIRD: That no pathological material from laboratories shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., June 12th, 1906.

SELINS GROVE, SNYDER COUNTY.

This application is for permission to discharge sewage into Penns Creek from the proposed sewer extensions of the existing sewer system.

Selins Grove is an incorporated borough in the township of Penns, County of Snyder. It is located on Penns Creek near its mouth. The creek bisects the borough and drains the territory above of about three hundred and fifty square miles. The head waters rise about forty-five miles west of the Susquehanna River, and after passing down a narrow, hilly shed, are joined about one and one half miles above the Susquehanna by Middle Creek, whose water shed is much smaller than Penns Creek. Together they empty into the Susquehanna River three miles below Selins Grove. From the borough south, Penns Creek runs parallel to, and about one and one half miles distant from the river. The intervening strip of land is called the "Isle of Que." This island is largely submerged during spring freshets. That part of it opposite the main part of Selins Grove is included in the borough. It is low in elevation, however, contains no sewers, and but a few water pipes.

Ordinary spring floods raise the creek ten feet or more, and heavy floods from fifteen to eighteen feet. During extraordinary high stages of the Susquehanna River water backs up Penns Creek as far as Selins Grove and for a day or so at a time the river overflows, the island and joins the creek above the borough.

The first sewers were laid in eighteen hundred and eighty-seven. At that time there were 1600 feet of sewers constructed. In nineteen hundred and three, Mr. H. M. McClure added to the system thirty-three hundred and twenty-five feet of eight inch and nine inch sewers, and again in nineteen hundred and five he added ten hundred and fifty feet more of eight inch sewers. It is for permission to use this sewer that application is made.

It appears that on the seventh day of August, nineteen hundred and three, an ordinance was duly passed by Council authorizing and empowering H. M. McClure, his heirs and assigns, to construct, maintain and operate house sewers, and for that purpose to dig up the streets and alleys of Selins Grove, and to lay sewer pipes, having their discharge into Penns Creek in said borough.

As the borough council has delegated authority to the said H. M. McClure, it may be said that the said McClure is the public authority having charge of the only sewer system of the borough.

There are all told in the said sewer system fifty-nine hundred and seventy-five feet, of which the largest size is ten inches in diameter. Forty-five connections have been made, and outside of the number of people in the University,

in some instances, the wells have been used as repositories of sewage, thus endangering other wells in the vicinity. The Stoystown Water Company, recently incorporated, or enfranchised, has petitioned to establish a system of public water works.

Outside of the abandoned wells there are said to be no cesspools in the borough. Nearly all the inhabitants use outside privies, of which there are about seventy. It appears that there are in the neighborhood of fifty modern water closets in use. Some of these discharge sewage into the street gutters; others into a public sewer and still others into a private sewer. Waste water from sinks, etc., is permitted to flow into the street gutters, and this, together with the sewage, has caused complaints to council for relief. Objectionable odors, especially in the summer, are pronounced, and the conditions in the borough, by reason of the lack of sewerage facilities, is extremely prejudicial to public health. The borough council do not know how to handle the difficulty in any other way than by the extension of sewers.

There is a private sewer connected with three dwellings which is eight inches in diameter and about eight hundred feet long, and discharges broadcast on the ground on the slope north of the borough. The owners of this sewer are said to be H. W. Berky, B. Hite and W. H. Miller. There is a public sewer twelve inches in diameter and about one thousand feet long, possibly not over five hundred feet, which is said to serve three dwellings on South Alley and the southern slope. It discharges into Maurers Run about midway of the village.

It is proposed to build an eight inch sewer in Main street to near the lower end of the borough where it is to pass through private property to Maurers Run at a point about thirteen hundred feet below the outlet of the public pumping station.

It is also proposed to build a twelve inch sewer in South alley and connect it with the present public sewer. This will serve about fifty people and the Main Street sewer two hundred and seventy-five people. The Main Street sewer will be thirty-four hundred feet long and the South alley street extension eight hundred feet in length. If these sewers are built and all the properties connected with them the sewage of three hundred and seventy-five people will be discharged into the run by the two sewer outlets.

Sewers are not proposed for the north slope of the borough. The grades of these proposed sewers will be steep. They are to take nothing but sewage proper. Roof and street water are to be excluded.

The borough can raise seven thousand dollars without exceeding the debt limit. The proposed sewers will cost half of this amount. If all possible connections were made on the basis of one hundred gallons per capita, the system would discharge thirty-two thousand five hundred gallons daily into the run. The run has a drainage area of about three hundred acres above the lower or Main Street sewer outlet. The dry weather flow of the stream is an inconsiderable amount. Owing to the steepness of the water shed, during rains, the bed of the run is thoroughly washed out. Below the Main Street sewer outlet proposed, the slope of the run is about one hundred and fifty feet in fifteen hundred feet, having its course through pasture land and timber land to Beaver Dam Run. Cattle drink this water. The discharge of sewage into it will increase the pollution and render the water unsuitable as a pasturage stream.

Beaver Dam Run is an acid stream to some extent, because it receives drainage from at least one coal mine. Probably the acidity of this stream will increase, and as coal is mined from the bank here, this acidity may be considered permanent. The cost of extending the present public sewer outlet down the valley of Maurers Run to the proposed Main Street outlet, and from this junction continuing down the valley to Beaver Dam Run, a total distance of about twenty-five hundred feet, plus the cost of the proposed sewers, is well within the amount of money which the borough can borrow. Permission to discharge sewage from this main interceptor into Beaver Dam Run would obviate suits for damages which very probably would be brought by the proprietors whose cattle are pastured in the fields bordering Maurers Run, and it does not appear that a temporary discharge at this point would be detrimental to the interests of the public health. So far as the Department of Health knows, there are no places between Stoystown and the city of Johnstown which take water for drinking purposes from the stream. The sewage of this city is discharged into the river and so are places below Johnstown. The waters are very acid and dirty and cannot be suitable for domestic purposes without placing prohibitions on the industries in the territory which prohibitions are not known to be practical at this time, although they may be in the near future.

Beaver Dam run at its junction with Maurers Run has a drainage area of twenty-five square miles so that the dry weather flow is sufficient to prevent nuisance. About one thousand feet below this junction Beaver Dam Run

enters Stony Creek which has a drainage area at this point of approximately one hundred and ten square miles. For these reasons and the fact that the borough cannot raise money enough to build a properly designed sewage treatment plant at this time, and because sewers are needed in the borough and Maurers Run should be preserved as a pure stream, it is unanimously agreed that the interests of the public health demand that temporary permission be granted the borough to discharge its sewage into Beaver Dam Run, and that a public sewer be built in Main Street and in South alley as proposed under the following conditions:

FIRST: That no sewage from the borough shall be discharged into Maurers Run above a point about two hundred feet below Berlin Road, which point is below pasture land and at the rapids in Maurers Run. An outlet sewer shall be built to take the flow from said sewer from said point and convey the sewage to Beaver Dam Run, but the borough is hereby given two years time from the date of this permit to build the outlet sewer down Maurers Run to said Beaver Dam Run.

SECOND: This permit to discharge sewage into the waters of the State shall cease on the first day of August, nineteen hundred and eight. Provided the conditions of this permit shall have been complied with on said date, the Commissioner of Health may extend the permit if, in his opinion, the interests of the public health will be subserved thereby.

THIRD: If, at any time, in the opinion of the Commissioner of Health, the sewer system, or the discharge of sewage therefrom is a nuisance or a menace to public health, the borough shall adopt such remedial measures as the Commissioner of Health may prescribe or approve.

FOURTH: Manholes shall be built in the sewers at street intersections and at changes in line and grade and a plan and profile of the sewers as built shall be prepared and filed with the Commissioner of Health.

FIFTH: No storm water, roof water or street drainage shall be permitted to enter the sewer system. The sewers shall be used to remove sewage only.

SIXTH: No pathological material from any laboratory shall be permitted to enter the sewer system. The proper authorities shall cause these wastes to be incinerated on the premises.

The attention of the borough authorities should be called to the fact that it is entirely unnecessary to build a twelve inch sewer in South alley. An eight inch sewer will be amply adequate and will more efficiently remove the sewage than would one twelve inches in diameter. Besides, several hundred dollars may be saved to the borough by adopting the more efficient sewer.

Harrisburg, Pa., September 17th, 1906.

TITUSVILLE, CRAWFORD COUNTY.

This application was made by the city of Titusville, Crawford County, and is for permission to extend a public sewer system and to build new sewers in the district of South Titusville, and to discharge sewage therefrom into the waters of the State.

It appears that Titusville is located in the southeast corner of Crawford County on Oil Creek, which creek passes through the city. This stream drains approximately three hundred and fifty square miles above the point on the banks thereof where Titusville obtains its public water supply. On the water shed within a radius of seventeen miles of Titusville there are several small villages and three boroughs, none of which places have public water works or sewer systems.

The public water supply comes from artesian wells located on the banks of Oil Creek west of the city line and just outside of the city limits. The water flows from the wells into cisterns from whence it is pumped. This artesian water is said to be clear and abundant. There is a river intake however, maintained for emergency purposes by which crude creek water may be introduced into the public water pipe system. As long as there are private sewers, cess-pools, and privies emptying into or located on the banks of creeks and natural water courses above Titusville, this intake will be a menace to the water consumers in Titusville.

The sewers of Titusville in turn discharge into Oil Creek and menace the lives of those who use this water for drinking purposes in the municipalities farther down the valley. So far as is known however, there is no municipality within fifty miles of Titusville which uses water for drinking purposes which might be polluted with the Titusville sewage.

The present sewers receive both sewage and storm water.

There are three public sewer outlets into Oil Creek, two into Mill Race which parallels the creek through the city or the business portion thereof, and four into Church Run which empties into the creek below Mill Race after draining the eastern part of the city.

The present discharge of sewage in its crude condition into the streams within the borough limits, constitutes a menace to the health of the population thereof, in three specific ways:

FIRST: That arising from the possible introduction of the polluted river water into the mains of the public water system.

SECOND: That arising from the mill-race pollution, especially during the periods of low water and stagnation.

THIRD: That arising from the pollution of the waters of the river, and the nuisance created by the stranding of suspended sewage matter along the shores thereof.

A menace to the health also exists by reason of the fact that the Company supplying the borough with water maintains a water intake from the polluted river, which intake, it is said, is only intended for use in case of a great conflagration. It has not been used for fifteen years.

It has been determined that the general interests of the public health require an extension of the sewer system, and permission is hereby given to the Borough of Warren.

FIRST: To make the alterations proposed by the borough in the Liberty Street outlet, upon the completion of which alterations the borough is to proceed to force the abandonment of each public and private sewer outlet into the mill-race and the Conewango Creek, whose waters supply said race, permission to make said alterations being granted upon the following conditions:

a. That the Liberty Street outlet be constructed at once, and its use be temporary only pending the adoption of a general intercepting sewer, urged by the Commissioner of Health and to be taken up and planned at once in connection with ultimate sewage purification.

b. That all individual sewers now discharging into the mill-race or the Conewango Creek, above the dam, be discontinued.

c. That the Seventh Street sewer outlet into the Conewango Creek be discontinued, and the sewage be diverted into the Water Street sewer.

d. That no sewage from any public or private source be discharged into the Conewango Creek or the mill-race above the dam.

SECOND: Permission be granted also for the construction of sewers for Conewango avenue, Frank and Glade streets, on the following conditions:

a. That the sewage shall be conveyed to the present sewer outlet into the Allegheny River, the overflows shown upon the plans submitted being hereby prohibited.

b. Storm water shall be kept out of the said sanitary sewers in the three streets above mentioned.

c. That separate conduits be provided as requested, for the conveyance of storm water from the surface of the streets.

THIRD: Permission be granted also for the construction of Ward Seven sewer system, provided the plans submitted be modified so as to exclude storm water, and provided that the sizes of the sewers be reduced to twelve inches for the main, ten inches for the sub-main, and eight inches for the lateral sewers. As so modified, Ward Seven system will be approved under the following conditions:

a. That the outlet into the river shall be a temporary one only, and upon the adoption of a general intercepting sewer for the borough, this outlet shall be abandoned, and the sewers thereof be connected with said intercepting sewer.

b. That the borough shall proceed forthwith to make surveys and prepare plans for a main trunk sewer to intercept all of the sewer outlets into the Conewango Creek and Allegheny River within the municipal limits, and submit the same plans, with a suggested plan of disposal, to the Commissioner of Health.

c. That after the sewers, whose construction is hereby provided for, are built, plans and profiles of the same shall be prepared, showing the sizes, grades, manholes and branches, one copy of which shall be filed with the borough, and another copy shall be filed with the Commissioner of Health.

d. That no pathological material from laboratories shall be permitted to discharge into the sewer system of the borough; the proper local authorities shall cause these wastes to be incinerated on the premises.

The above permissions are hereby granted under the express condition and stipulation that the Warren Water Company is at once to sever the pipe connection with the river intake, which connection now constitutes a serious menace to health, and said company shall not connect the same intake with the said water works system except during a great conflagration, and at such time the borough authorities and the Department of Health shall be notified, and the attention of the water consumers be called to the absolute necessity of boiling water used for drinking and for washing food stuffs to be eaten in the raw state. By these requirements the borough will secure economy in present and future expenditures, improve conditions in the sewers and the streams will be assured, and no appreciable pollution of the Allegheny River will result.

Harrisburg, Pa., September 29, 1905.

WAYNE, DELAWARE COUNTY.

Wayne Sewerage Company.

This application was made by the Wayne Sewerage Company and is for permission to erect, operate and maintain a disposal plant for the treatment of sewage in the village of Wayne, Radnor Township, Delaware County.

There is a system of sewers and sewage disposal works now in operation in this village. They are owned by the Wayne Sewerage Company. The sewers take roof water, and there is a large amount of leakage into them, although they were originally designed on the separate principle. Some of this leakage and all of the roof water can be cut out.

The minimum flow from the entire system is three hundred thousand gallons daily and the maximum flow, due to storm water and leakage, one million two hundred and fifty thousand gallons. The average dry weather flow is three hundred and twenty thousand gallons.

The sewage is now conveyed to a disposal plant by a twelve inch pipe terminating in a screen chamber and storage tank of about one hundred thousand gallons capacity. From here the sewage is pumped into a distributing tank on a hill about one hundred feet above the pumps, whence it is discharged over the surface of the ground and finally reaches Ithan Creek in a clarified condition.

The sewage is supposed to be purified by absorption in the ground, but the operation of the works has resulted in the contamination of the creek to the injury of the owners of property in the neighborhood.

The Wayne Sewerage Company now represents that the said sewage disposal plant is obsolete in design and that its maintenance is an undue expense; that with a view to economy in operation and increased efficiency, it is desirable that new sewage disposal works shall be installed, and to this end plans for the treatment of the sewage by septic tanks, coke roughing filters and secondary sand filters, capable of effecting a high degree of purification, have been prepared and submitted for approval.

The new plant is to be located on the same tract of land as the old plant, but on the north side of the creek. This tract on the north side of the creek is triangular in shape and level. The base of the triangle is Ithan Creek, and one side is the public highway. Through this tract the present twelve inch main sewer is built. This sewer is to be tapped and its flow diverted to the proposed septic tanks which it will reach by gravity. The elevation of the inlet pipe is one hundred. After the sewage has passed through the plant it will be collected in under-drains on the bottom of the sand filters at elevation eighty-eight. Thus twelve feet vertical height are required by the processes proposed.

It is proposed to cut out all of the roof water and as much of the leakage as possible, and it is estimated that the reduction will amount to seven hundred thousand gallons during times of storm; but the amount of reduction is problematical and at best, considerable fluctuation in flow of the sewers may be anticipated. For this reason it is proposed that one of the compartments of the septic tank shall be used to store the storm water and a drain is provided from this compartment to filter bed number one, so that any overflow may pass on to this filter bed and through it before going into the creek.

It has been unanimously agreed that the interests of the public health require that the Commissioner of Health grant a permit and permission is herein granted to the Wayne Sewerage Company to install the aforesaid sewage disposal works under the following conditions:

FIRST: That the present pumping station, storage tank and outlet sewer connection therewith shall be maintained for emergency uses:

SECOND: That storm water and leakage shall be cut out of the sewer system if possible, to the extent that the maximum flow of the sewer system in times of storm shall not exceed five hundred thousand gallons per twenty-four hours.

THIRD: That adequate means for controlling and regulating the amount of sewage entering each compartment of the septic tank shall be provided and used, and to this end, outlet weirs shall be placed, one on each outlet conduit of each septic tank compartment, and be so arranged that when the head on the coke strainers is three feet above the surface thereof, the back flooding shall be at least three inches below the crest of each weir.

FOURTH: That the floor of the coke strainers shall be dropped bodily one foot below the elevation now proposed, and the depth of coke therein reduced to twenty-four inches and the walls of each compartment carried to a sufficient height so that the maximum head of three feet over the surface of the coke strainer may be reached without overflowing the wall.

FIFTH: That in order to regulate, control and facilitate the delivery of uniform and equal volumes of septic effluent to each coke strainer, there shall be a weir placed on the inlet pipe into each of the eight downflow coke strainers.

used a few miles below West Middlesex for drinking purposes. If the sewers petitioned for are a public necessity, the welfare of the public demands that the discharge from these sewers when built shall be treated and purified before the liquid goes into the Shenango River. There can be no other conclusion consistent with the stand the Department of Health has already taken with respect to sewage disposal at New Castle.

Therefore, permission is hereby granted to the borough of West Middlesex to build the following sewers:

Schedule.

In Burnett alley 311 feet of 8 inch sewer.
In North street 1,169 feet of 8 inch sewer.
In Railroad street 980 feet of 8 inch sewer.
In alleys 570 feet of 8 inch sewer.
In Main street 440 feet of 12 inch sewer.
In Main street 2,200 feet of 8 inch sewer.

All according to plans and profiles accompanying the petition and described therein, on the following conditions:

FIRST: That the said sewers shall not be built until a plan of sewage disposal works has been prepared by the borough and submitted to the Commissioner of Health for his advice and approval, as a high degree of purification will be demanded for the protection of the health of the people of the Commonwealth.

SECOND: That construction work on the sewers shall not be begun until the borough of West Middlesex is prepared to begin construction of said sewage disposal works.

THIRD: That no pathological material from laboratories shall be permitted to be discharged into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., December 4th, 1905.

WEST CHESTER, CHESTER COUNTY.

This application was made by the borough of West Chester and is for permission to install a system of sewerage and sewage disposal works and to discharge the effluent therefrom into the waters of the State.

It appears that West Chester borough is the seat of Chester county. Its population of about eleven thousand, includes individuals of wealth and culture besides many who are obliged to toil daily. Business men whose affairs are elsewhere live in West Chester, and it is altogether more a place of residence than manufacture. It is located in the center of a farming and dairy country on a high ridge, three-quarters of the municipal territory draining towards the Brandywine Creek and one-quarter towards Chester Creek. This latter area comprises two hundred and seventy-six acres in the borough and the stream goes by the name of Goose Creek.

The former area is made up of four sub-districts within the borough as follows: District number one, Howell's Run, three hundred and sixty-four acres; district number three, Price's Run, one hundred and eighty-three acres; district number four, Taylor's Run, one hundred and eighty-seven acres; district number five, Shipley's Run, ninety-one acres.

All of these streams have a rapid flow and steep grades. Price's Run and Shipley's Run dry up in summer time. They are the head waters of Blackhorse Run and Plum Run respectively. Howell's Run also rises in the borough, but the other two streams, viz., Taylor's Run and Goose Creek have drainage areas above the borough, that of Taylor's Run being six and ninety-five hundredths square miles above the site of the proposed sewage disposal works in its valley, and that of Goose Creek being two square miles above the site of the proposed sewage disposal works in its valley.

It is evident therefore, that West Chester is drained by streams whose areas are so limited that the dry weather flow in them is an inconsiderable volume, probably being as low as seven-tenths cubic feet per second in Taylor's Run and two-tenths cubic feet per second in Goose Creek. Hence discharge of sewage into any of these natural water courses would render them practically open sewers.

About two miles of brick sewers and five miles of pipe sewers have been laid in the borough of which two miles drain into Howell's Run, three miles into Goose Creek, one-quarter of a mile in Price's Run and one and three-quarters miles in Shipley's Run.

These drains were not intended to carry away much sewage and permits for this purpose are not granted. Nevertheless, they empty sewage into streams and thereby menace the health of man and beast who subsequently drink the water.

In West Chester there are a large number of privies and cesspools. The latter are often troublesome, especially during times of cleaning out.

The water supply is owned by the borough. It is taken from Chester Creek at two points and pumped into a reservoir on Fern Hill, from which it is distributed by gravity through the borough. The consumption is eighty gallons per capita now. In the future when sewers are built, the consumption will be increased per capita. Most everybody uses the public water works system.

It is proposed to build sewers to carry sewage only. They are to be laid straight in line and grade between manholes; they are calculated to run half full at times of maximum flow, leaving the upper half of the pipe for ventilation. Manhole covers are to be without perforations, so as to prevent the entrance of street dirt into the sewers, and the sewers are to have a carrying capacity equal to the estimated water consumption of a populace three times the present size of the borough, and at that capacity the sewers are to flow half full on the assumption that one-half of the total daily flow will run off in eight hours.

Flushing of the sewers is to be accomplished by connections with the water system at summit manholes.

House connections are to be five inches in diameter, enter the sewer through Y junctions and have minimum gradients such as to develop self cleansing velocities.

The main intercepting sewers are planned to carry the maximum quantity when flowing three-quarters full instead of half full as with the lateral sewers.

A general plan of the entire sewerage system for all the borough territory is submitted. It comprises thirty-four and seven-tenths miles of sewers. For the present it is suggested that six miles of sewers be built in district number one, six miles in district number two and about two miles in district number three.

The borough territory being divided naturally by the topography into five distinct drainage districts, four of which belong to the Brandywine watershed, precludes the possibility of collecting the sewage by gravity to one point for treatment; therefore, it is proposed to locate one disposal plant on the Brandywine watershed, and the other on Chester Creek watershed. The sewage from Howell Run or district number one, and from district number four, Taylor's Run, will reach the larger disposal plant to be located in the valley of Taylor's Run, East Bradford township, by gravity.

The sewage will reach the disposal plant to be located in Chester Creek watershed by gravity. This plant is to be located in West Goshen township on Goose Creek.

It is proposed to pump the sewage from districts number three and number five into the outfall sewer leading to the Taylor's Run plant. By this arrangement it is estimated that for many years to come the sewage to be intercepted and pumped in districts number three and number five will be small, amounting to about twenty per cent. for the whole. In other words about eighty per cent. will reach the disposal plants by gravity.

It is proposed to install two small centrifugal pumps at each station, directly connected to electric motors by vertical shafts, the pumps to be placed in wells at such an elevation that in starting they will be below the level of the sewage and thus already primed. The motors will be placed in the room above the wells, not coming in contact with moisture or gases. The starting and stopping will be effected by automatic switches actuated by the movement of floats in the well as the sewage rises and falls. When the sewage reaches a certain height the circuit will be made and the motor started, and when the sewage is pumped down, the lowering of the float will break the circuit and stop the motor. The result of this frequent starting and stopping is to produce, as nearly as possible, a continuous discharge and so eliminate the necessity for a pump well or reservoir of any magnitude.

A second pump and motor is to be provided in each station. The pump wells in both plants are to hold about five thousand gallons. The pumping stations are to be ten feet by fourteen feet inside measurement. The pumps in district number three are to be rated at two hundred and fifty gallons per minute each; those in district number five, one hundred gallons per minute each. The force mains from the districts are to be eight inches and six inches in diameter respectively.

At each disposal plant it is proposed to treat the sewage first in septic tanks, next in sprinkling filters and finally by sand filtration in order that a very high degree of purification shall be attained, in fact, the highest purification possible in practice.

The design of the plant is based on the estimated amount of sewage to be handled in ten years from now. In round numbers the Goose Creek plant will have a daily capacity of four hundred thousand gallons and the Taylor's Run plant eight hundred thousand gallons.

The rates for the several processes of fifteen hour periods in septic tanks are one million gallons per acre daily for sprinkling filters and two hundred and fifty thousand gallons per acre daily for sand filters.

The septic tanks are designed to be concrete masonry structures, each divided into three units which will make possible the adaptation of the period of septic

It further appears that the Codorus Creek at times of low summer flow, for periods of several weeks at a time, may not yield at York city more than thirty-five to forty-five cubic feet per second, and possibly less, a volume too small to dilute the sewage of more than from ten thousand to fifteen thousand people without creating a nuisance.

At present, according to measurements and estimates—excluding the mills—seven thousand people only are using the old existing sewers. It is estimated that twenty-five thousand people may use the new system of sewers during the first year of its operation. In all probability, such new use would be greater than the diluting capacity of the creek, so that the conclusions herein reached are not based upon any particular estimate of use.

To obviate a nuisance in Codorus Creek, the sewage from the new system might be conveyed to the Susquehanna River and there discharged in its raw state; but there are two factors which prohibit such a disposal of York sewage; first, the prohibitive cost, second, the broader and most important consideration, the general interests of the public health.

Columbia borough takes its water supply from the Susquehanna River at a point eight miles below the Codorus Creek outlet. This supply is filtered by a mechanical filter plant of recent installation. The possibility of an emergency arising necessitating the introduction of the raw river water into the mains of Columbia system always exists, and to this extent the discharge of York sewage anywhere into the Susquehanna river above Columbia borough, or into Codorus Creek, is a menace to the health of everybody who may have occasion to use water for drinking purposes in said borough.

It has been determined that the only way to remove this menace, is to remove the cause, and that it nowhere appears that the interests of the public health demand that more sewage shall be discharged into Codorus Creek than was being discharged at the time the city of York determined it to be necessary to stop the pollution of the creek by the construction of sewerage and disposal works; but to the contrary, it does appear, and it is unanimously agreed that the discharge of all sewage into said creek should be discontinued in the interests of public health.

It further appears that the old sewer system comprises about fifteen and nine-tenths miles, of which nine and three-tenths miles are private sewers. Thirteen of the twenty-three outlets into Codorus Creek were built by private enterprise, and fifteen other private sewers or systems empty into public sewers whose outlets are into said creek. The said private sewers supply a very large percentage of the total domestic sewage which finds its way into the Codorus Creek through the said twenty-three sewer outlets.

Six of the twenty-three outlets are city storm sewers with which some abutting estates are connected and into which about one and seven-tenths miles of private sewers discharge.

Twelve other storm drains empty into Codorus Creek but they discharge very little or no sewage. Their total length is about one and four-tenths miles. Besides the above, there are three other storm drains owned by the city emptying into smaller natural water courses in the eastern part of the city, from which it is claimed no sewage is discharged.

The remaining four of the said twenty-three outlets into Codorus Creek are city combined sewers having a total length of one and five-tenths miles. Besides receiving sewerage from abutting estates, they serve as outlets for about three miles of private sewers.

It further appears that the new sewer system was designed to collect all of the sewage of the city in a system of sewers from which all storm and roof water was to be excluded. Therefore, none of the existing storm drains were originally incorporated in the plan. However, this feature of the design has since been modified, and three storm drains have thus far been taken into the system. Their total length is about two miles, and the daily dry weather flow of sewage therefrom is nearly a half million gallons.

It is proposed that all of the dry weather flow of sewage from these three storm drains shall go into the intercepting sewer and thence to the disposal works, but during storms the mingled sewage and storm water is to be cut out of said intercepting sewer and caused to overflow into Codorus Creek. This expedient is resorted to for at least two reasons. First, it permits the use of the existing storm drains, thereby saving the cost of paralleling them with separate sewers. Second, it obviates the cost of conveying the large volume of mingled sewage and storm water to the purification works and there treating it.

This last object can be accomplished by building separate sewers in the streets where the combined sewers or storm drains are located and using them to collect the sewage and leaving the old drains for storm water only which may be permitted to flow into the creek without danger to any one. The estimated cost of doing this is twelve thousand dollars. If it be not done, four hundred thousand gallons of sewage may for a day at a time be discharged into the creek and in the future, possibly as great a volume of domestic sewage may reach the creek as is now being discharged therein by the entire city.

It further appears that about one-third of the private sewers are suitable or can be made suitable to be taken over into the new system. The rest of them are out of consideration for all time and will be paralleled by the new system.

Hence, since many of the owners of estates now connected with the private sewer may not care to change over to the public sewer if such change entails personal expense, the sewage from the private sewers may continue as now to go into the Codorus, unless the owner of the private sewer voluntarily connects with the city system, or he be compelled to discontinue the discharge of such sewer into the creek.

Probably the present private sewers will continue to empty the bulk of their sewage into the Codorus, even were permission granted to the city to use its new sewer system.

It is estimated that twenty-five thousand people will avail themselves of the new sewerage facilities during the first year that the system is to be put into commission. Therefore, in the event of petitioners' application being granted, the sewage of perhaps twenty-five thousand people which is now disposed of into cesspools, sink holes and privies may be added to the volume of polluting matter which at present goes into the creek from the private sewers.

Evidence is entirely lacking to show the necessity for a material increase in the degree of the present contamination of the creek. Besides, a permit contingent on city appropriation might entail serious complications and much trouble. In the interests of all concerned, it has been determined that the city system of sanitary sewers should be extended as originally laid out, and that all sewage should be collected and conveyed to a proper place and there be treated before being delivered into the Codorus Creek.

Therefore, in the interests of the public health, permission to dispose of sewage into Codorus Creek, as applied for, is denied, but permission is hereby granted for the extension of the said city sewer system under the following conditions:

FIRST: That all of the sewage of the city shall be collected by the new city sewer system and a plan thereof shall be prepared and filed with the Commissioner of Health on or before March first, nineteen hundred and six, showing the entire district ultimately to be served by said system, and having marked thereon the sewers of said system built on or before January first, nineteen hundred and six. At the close of each succeeding year, a plan shall be submitted to the Commissioner of Health, showing the sewers added to said system during the year just passed.

SECOND: That all storm and roof water shall be excluded from the said system of sewers. Therefore, existing storm sewers most not be taken into said sewer system.

THIRD: That the sewage from the said sewer system shall be conveyed to some suitable place and there be treated by some well known and acceptable process. Plans of the intercepting outfall and sewage disposal works must be submitted to the Commissioner of Health for his approval before the same works are built.

FOURTH: That no pathological material from laboratories shall be permitted to discharge into the system. The proper authorities shall cause these wastes to be incinerated on the premises.

Harrisburg, Pa., January 18th, 1906.

YOUNGSVILLE, WARREN COUNTY.

This application was made by the borough of Youngsville and is for permission to construct a sewer and to discharge the sewage therefrom, untreated, into Brokenstraw Creek within the limits of the borough.

It appears that Youngsville is a growing little municipality of about twelve hundred population. It is located in the centre of Brokenstraw township, on the Philadelphia and Erie branch of the Pennsylvania Railroad, and on the Dunkirk, Allegheny Valley and Pittsburg Division of the New York Central System. It, therefore, has good railroad facilities which with other inducements has brought to the borough within a few years two furniture factories and three planing mills, all in flourishing condition. The signs point to even a greater measure of prosperity for the future.

The public water supply project has yet to mature. At present the inhabitants take water from individual wells driven into the sand and gravel formation to a depth from thirty to seventy-five feet. At the present time there are about three hundred such wells scattered over the borough. Some of them are in proximity to privies and cesspools. It is reported that there are two hundred and fifty earth privy vaults and about twenty cesspools.

At present there is no public sewerage system but there are eleven private sewers, ranging in size from six to ten inches, aggregating a total length of three thousand feet, and discharging the sewage of about three hundred and eighty people during the day-time into the creek at a point above low water. Five of these sewers are on the west side and are connected with dwellings only. Two of the sewers on the east side are from manufactories, one from the hotels, one from office building and two from residences. They all enter the stream in the center of the borough within a radius of a quarter of a mile. Only one of these sewers causes a nuisance. It is an eight inch sewer from the Youngsville Manufacturing Company's plant, where one hundred and fifty people

At the station there is a pumping engine of two hundred and fifty thousand gallons daily capacity nominal rate.

At the present time about eight hundred people only use city water. The rest depend wholly on shallow wells driven into sand and gravel. However, in many homes that are supplied with public water the people continue to use well water for drinking purposes. It is estimated that there are two hundred wells which supply drinking water to approximately one thousand eight hundred people.

The Iron City Sanitary Manufacturing Company is the big consumer of public water. Of the total daily supply of fifty thousand gallons to the borough, approximately fifteen thousand gallons are consumed by said company.

On account of inferior construction of the driven wells and suction pipe across the creek the amount of water obtainable from this supply is limited to approximately forty thousand gallons daily, so that frequently it becomes necessary to use the old intake and supply creek water to the consumers. During heavy demands on consumption and always during fires the larger percentage of the supply is obtained from the creek. This fact accounts for the preference of the people of Zellenople for individual wells for drinking purposes. Until more money is expended and all the supply is derived from ground waters, the revenues of the water works system will not be sufficient to make the system self supporting. However, since the municipality cannot exceed the debt limit as the law now stands, the outlook for an immediate improvement of the public water works system is not encouraging. The borough should increase its borrowing capacity by increasing its assessed valuation, or by securing legislation which will sanction the borrowing of money for water works outside of the debt limit. As matters now stand, the people will continue to drink well water.

On the high ground east of Main street, immediately beneath the subsoil, there is a ten to fifteen foot layer of shale rather impervious to water. This layer rests upon a stratum of sand and gravel. West of Main street, extending to the creek, the shale runs out and the formation is sand and gravel to a considerable depth. Most of the private wells in the borough are driven into the sand and gravel. East of Main street the well water is not so liable to be polluted with sewage from the loose privy vaults, but west of Main street, where the surface water percolates rapidly into the sand and gravel, the well water is quite likely to be polluted with sewage. It appears therefore that the interests of the public health would be promoted by the general abandonment of privies, and the universal discharge of all sewage and waste water into the sewer system.

The district in which the borough purposes to construct sewers mentioned in the application is small in area, about eight acres only in the northern part of the municipality, where the water works pumping station is. The outlet is to be eight inches in diameter and be at the foot of Clay street, which is four hundred feet below Main street and the water works intake. The total length of sewers tributary to this outlet as proposed is three thousand and fifty feet. There are about one hundred people living in this district now.

It is stated in the petition that it is almost impossible to have the Clay street district system connected with the present sewer outlet main of the borough. This is not so. The plan originally submitted contemplated such a connection. The expense of making it however, would be greater than the abutters, who are to defray the cost of the proposed sewers, care to assume. The additional cost of extending an outlet down Railroad street and the Baltimore and Ohio Railroad location or in that vicinity, a distance from one thousand three hundred to one thousand seven hundred feet, might not be over one thousand dollars, and should not exceed two thousand dollars.

Twelve miles below Zellenople the borough of Ellwood City, with a population of eight thousand, takes its public water supply from Connoquenessing Creek, in part. The main supply is from Slippery Rock Creek, or was in one thousand nine hundred and four, at the time of the Butler typhoid fever epidemic, and so far as this Department is informed, there has been no change yet. No purification is attempted.

Twenty-one miles below Zellenople, Beaver Falls, and twenty-two miles below New Brighton, and twenty-five miles below Beaver, the first two being on the Beaver River and the last place on the Ohio River, take these waters as a source of filtered water supply.

There are five boroughs and one village within fifteen miles above Zellenople whose combined population of over twenty thousand discharge sewage into Connoquenessing Creek. The drainage area of the creek above Zellenople is approximately three hundred and fifty square miles and its dry weather yield may be even less than six million gallons daily for short periods. When the Butler epidemic of one thousand nine hundred and three and four was at its height, there was an increase in the typhoid fever rate at Zellenople and Ellwood City. Harmony borough adjoins Zellenople and its sewage is emptied into the slack water but a short distance above Zellenople's intake.

In view of the fact that it is inexpedient for the borough to cease using Connoquenessing Creek as an emergency supply at this time, and because the pollution of this source of supply by the sewage of municipalities above should

be diminished rather than increased, and because the State Department of Health cannot consistently require this of the upper municipalities and at the same time sanction the pollution of Ellwood City supply by an increase in the amount of sewage from Zellenople, therefore it has been unanimously agreed that the interests of the public health require that as soon as it is practicable the borough shall purify all of its sewage before it is discharged into the stream. Because sanitary improvements in this valley should be toward a restoration of the streams to their original purity, Zellenople should adopt a plan which has for its object the treatment of all of its sewage, and such a plan argues against the establishment of more than one sewer outlet.

In view of all the circumstances, it is unanimously agreed that the interests of the public health require that the Commissioner of Health grant permission, which permission is hereby and herein granted to the borough of Zellenople, to extend its sewer system within the present limits of the borough under the following conditions:

FIRST: That no sewer outlet into any of the waters of the State shall be created, but that all sewers built shall be connected with the system whose outlet shall be the present outlet main now discharging into Connoquenessing Creek below the borough in Jackson township.

SECOND: All storm and roof water shall be excluded from the system. It shall be used to convey sewage only and manholes shall be constructed on the sewers at street intersections and at changes in line and grade.

THIRD: That at the close of each season's work a plan and profile of the sewers built during the year together with any other information in connection therewith shall be prepared and filed with the Commissioner of Health. At the close of the present season a plan of the borough shall be prepared and submitted to the Commissioner of Health showing the existing sewers, their locations, sizes, depths and grades, and manholes.

FOURTH: If at any time, in the opinion of the Commissioner of Health the sewer system or the discharge of sewage therefrom is a nuisance or a menace to public health, the borough shall adopt such remedial measures as the Commissioner of Health may prescribe or approve.

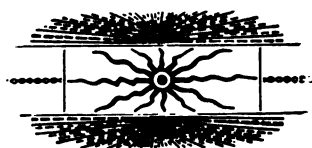
FIFTH: This permission to extend the sewer system and to discharge sewage therefrom into the Connoquenessing Creek shall cease on the first day of August, one thousand nine hundred and eight. If at that time the conditions of this permit have been complied with and the interests of the public health demand it in the opinion of the Commissioner of Health, he may extend the time for said discharge in said creek.

SIXTH: On or before the first day of August, one thousand nine hundred and eight, the borough shall prepare plans for the treatment of the sewage of the sewer system, and shall submit the same to the Commissioner of Health for his approval, who may modify, amend or approve the same and fix the time within which the same shall be constructed.

SEVENTH: No pathological material from any laboratory shall be permitted to enter the system; the proper authorities shall cause these wastes to be incinerated on the premises.

The attention of the borough authorities is called to the unsuitability of the waters of Connoquenessing Creek as a source of domestic ice supply, also to the desirability of the abandonment of privies and other sources of possible contamination of the individual wells from which drinking water is obtained, and finally to the importance of immediately increasing the supply of ground water pure and abundant in order that the necessity for introducing Connoquenessing Creek water into the water works system shall be entirely obviated except possibly in an extraordinary emergency like a great conflagration.

Harrisburg, Pa., September 17th, 1906.



OPERATIONS OF THE LABORATORY.

HERBERT FOX, M. D., Chief of the Laboratories.



OPERATIONS OF THE LABORATORY FROM ITS OPENING TO THE END OF 1906.

The Department of Health has ever appreciated the fact that one of its objects was to help the practitioner of medicine in the care of his patients in every ethical manner. Realizing this, it had, at its inception, the hope of establishing a laboratory where physicians might send material for examination in clinical pathology, that intermediate branch of medicine which so closely unites practice and pathology. The scope of the laboratory was to be broader than this, however, and to include facilities for the analysis of water, milk, and butter, which necessities of life are so prolific a source of the transmission of disease. By water analysis, great service could be rendered private persons, the public, and other divisions of this department, especially in times of epidemic.

This hope of the Department became a reality in the last half of 1906, when the University of Pennsylvania very generously placed at our disposal sufficient space and ample facilities for the great work which was to begin. This laboratory space is situated in the Department of Pathology of the Medical School.

Even after the laboratory had permanent quarters it took time for the details to be completed, and it was not until December, 1906, that circulars and pamphlets were sent to all physicians in the State announcing the opening of this division of the Department of Health. At the last of the year 1906, proper outfits for the forwarding of specimens to the laboratory were ready for distribution. The announcement contained brief notes of the clinical conditions in which the laboratory would make pathological examinations of respective materials. Naturally a laboratory of this sort has to deal almost entirely with specimens from communicable diseases. Therefore, typhoid fever, tuberculosis (in all its forms), malaria and dysenteric disorders were the most important. Diphtheria was not included, because it is the opinion of the Department that the possible delay in the use of antitoxin while waiting for a bacteriological report would be prejudicial to the patient. Delay is inexcusable, since antitoxin may be obtained free to the indigent, from any of the distributors of the Department. In order to be of service in the less important infections, such as pleuritic inflammation, suspicious eye or genital conditions, provision was made in our arrangements for the examination of pus or other pathological fluids. For those practitioners out of reach of pathological laboratories and who are desirous of ascertaining the nature of morbid growths, these were also included among the list.

Water analyses were intended to be of service in the bacteriological examination of both private and public water supplies. The physician may thus be able to trace the source of an infection in his cases of illness, thought or known to be water born. When water analyses were desired, application was to be made in writing to the Department of Health, Harrisburg.

The physician received together with his "Announcement" a postal form upon which he was to make application for the outfits; this was to be forwarded to the Department at Harrisburg, upon the receipt of which the outfits, ready for use, were supplied to him. These outfits consisted of a double tin mailing case, contained a sterilized glass saline box in which pathologic fluids or growths were to be sent, an envelope package with a piece of paper, upon which blood for the Widal reaction was to be collected, and a wooden box containing two slides for blood smears, when a malaria examination was required. Each outfit was accompanied by full instruction for the preparation of the specimens and calling attention to proper precautions in the handling of infective material. Request cards were also supplied, one for every outfit, upon which were to be written *all facts of importance* in the examination. These were to be sent in

properties unimpaired. There are other acid-fast organisms in sewage, most numerous found in the river sewage, but which morphologically are easily distinguishable from the tubercle bacillus. The laboratory is now at work to determine the effects of eosin upon the tubercle bacillus, in the hope of killing off sewage bacteria by this agent, after having established the length of time to which one may expose the tubercle bacilli to its action without destroying their life. What damage has been done to the tubercle bacillus by the treatment outlined above, or what will be done by the eosin, is difficult to measure, and must be discovered by experimental research.

Doctor Rivas, who has charge of the water analyses, has been busy since his connection with the laboratory, on his work of shortening the laborious task of determining the presence of the bacillus coli in water, and with reference to the predominance of that organism in sewage and polluted water. By successive dilutions, he is endeavoring to prove that the numerical supremacy of the bacillus coli in polluted water, is directly in proportion to its degree of pollution. He has been able to shorten the work of the isolation of bacillus coli by showing that certain organisms usually classified in the colon group are not true colon, but belong in a class which he styles, "The Saccharolytic Group." Their identity depends upon the rapid exhaustion of sugar and distinctive color tests comparable to indol. Publication of these works was not made before the first of the year. No communications have been published from this laboratory to the end of the year.

SPECIAL REPORTS.

THE OPERATIONS OF THE DEPARTMENT IN THE SUPPRESSION OF THE EPIDEMIC OF TYPHOID FEVER AT NANTICOKE, SEPTEMBER TO DECEMBER, 1905.

Chief Medical Inspector, F. C. Johnson, M. D., and Chief Sanitary Engineer,
F. Herbert Snow, C. E., in charge.

The management of an outbreak of Typhoid Fever, attributable to a water supply naturally calls upon both the Medical and the Engineering Division of a department of health for the solution of all its varying problems, and the meeting of all its emergencies. When, therefore, the Commissioner became convinced by information received through the public press that an epidemic of that disease prevailed at Nanticoke, Luzerne County, in the early part of September, 1905, he commissioned the heads of these divisions to visit that city and each in his own department take such steps as appeared to be demanded in order to stamp it out, co-operating in every possible way and also keeping in daily communication with the central office by wire.

The following is a succinct statement of the operations of the Department collated from the full reports of these officers.

At this early date in the history of the Department, the system of reporting the occurrence of communicable diseases by physicians directly to the central office, which has since worked so admirably, had not yet been inaugurated, and the only way in which the Commissioner could obtain information of alarming conditions affecting the public health was through the county papers which had been subscribed to for that express purpose.

The medical staff devoted their labors to questions of diagnosis, nursing-care, hospital installation, domiciliary quarantine and disinfection, and historical survey, while the efforts of the Engineering Staff were confined to investigations of the source of water supply and the distributing system and to the eradication of any poison in the different parts of the works; also to permanent measures for the purity of the source of supply.

On September 9, 1905, an epidemic of Typhoid Fever was in full swing in Nanticoke. The extent of the attack, the number of cases and the total inability of the local health officials to cope with the situation was promptly determined by the Commissioner of Health to be a condition demanding that he should assume full charge under Act No. 218, approved April 22nd, 1905, which provides that the Commissioner of Health may revoke or modify any order, regulation, by-law or ordinance of a local Board of Health, concerning a matter which, in his judgment, affects the public health beyond the territory over which such local board has jurisdiction, and that it shall be his duty to protect the health of the people of the State and to determine and employ the most efficient and practicable means for the prevention and suppression of disease.

SURROUNDINGS.

The borough of Nanticoke is a coal-mining town of about 14,000 population, located in Luzerne County immediately below Plymouth on the opposite or south bank of the Susquehanna River.

A hill about one and a half miles in diameter and rising gradually two hundred feet above the valley of Nanticoke and Newport Creeks is the site of the town. The higher ground is occupied by dwellings and the lower ground by business blocks and the collieries.

some instances were unknown. Nuisances of every description were scattered throughout the town. Surface privies varying in construction and sanitary fitness were undoubtedly the source of untold mischief in extending the epidemic through the medium of flies. A municipal house cleaning was sadly needed and this work was instituted early in the epidemic. Many connections to sewers were made and hundreds of nuisances were investigated and abated by the special Sanitary Officers appointed. A systematic liming of all surface closets was carried on throughout the epidemic, as was the distribution of lime which the nurses instructed the householders to use as a disinfectant. The condition and wants of the indigent incident to typhoid fever were investigated and orders of relief issued for deserving families. The condition of the stricken town was early appreciated by an ever sympathizing and generous public with the result that cash donations arrived with every mail, aggregating upwards of \$2,200.00. Many entertainments and benefits were given for this fund which enlarged the scope of relief work much more than would otherwise have been possible.

As proper facilities were not at hand for boiling water at school houses, mineral water was supplied by the Department throughout the epidemic.

Water supplied through the generosity of a Mineral Water Company was distributed among the stricken people and another company supplied all water used in the hospital for drinking purposes.

The untiring, devoted attention of the twenty-six nurses comprising the visiting staff merits full commendation and the aid rendered by them in stamping out this epidemic cannot be over-estimated. Especial notice, however, is due to the aid rendered by Miss Alice O'Halloran, of Philadelphia, who was fortunately secured by the Commissioner as head nurse. By her executive ability and her thorough knowledge of the essentials for nursing in this particular disease she was able quickly to organize the nursing corps, and by infusing into it her own enthusiasm to render it active and efficient.

Emergency Hospital Statistics.

Of the following cases admitted, numbers 20 and 45 were found to be moribund on admission. Three others of a decidedly unfavorable prognosis were of necessity admitted and subsequently died.

Case Number.	Age.	Sex.	Admitted.	Discharged.	Died.
1.	9	M	9-14-05	9-30-05	
2.	19	F	9-14-05	9-26-05	
3.	22	F	9-14-05	10- 3-05	
4.	46	M	9-14-05		10- 3-05
5.		M	9-14-05	10- 5-05	
6.	40	M	9-14-05	10- 2-05	
7.	60	M	9-14-05	10-16-05	
8.	22	M	9-14-05	10-23-05	
9.	22	F	9-15-05	10-23-05	
10.	38	F	9-15-05	10-12-05	
11.	18	M	9-15-05		9-18-05
12.	18	M	9-15-05		
13.	33	M	9-15-05		9-28-05
14.	8	M	9-16-05	10- 2-05	
15.	28	M	9-16-05	9-30-05	
16.	25	M	9-16-05	9-30-05	
17.	15	M	9-16-05	10-24-05	
18.	24	M	9-16-05	10- 2-05	
19.	22	M	9-16-05		
20.	29	M	9-16-05		9-17-05
21.	44	M	9-16-05	10-12-05	
22.	35	M	9-17-05		10- 2-05
23.	44	F	9-17-05	10-12-05	
24.	7	M	9-17-05	10-26-05	
25.	4	M	9-18-05	9-22-05	
26.	23	M	9-19-05	10-30-05	
27.	21	M	9-21-05	10- 5-05	
28.	22	F	9-21-05	10-20-05	
29.	43	F	9-22-05	10-24-05	
30.	17	M	9-23-05	10-22-05	
31.	12	F	9-24-05	10-24-05	
32.	30	F	9-26-05	10-27-05	
33.	38	M	9-26-05	10-14-05	
34.	25	M	9-28-05	10-31-05	
35.	19	F	9-28-05	10-27-05	
36.	18	F	9-29-05	10- 1-05	
37.	32	M	9-29-05	10-23-05	
38.	21	F	10- 1-05	10-31-05	
39.	22	M	10- 1-05	10-23-05	
40.	11	M	10- 2-05	10-15-05	
41.	28	M	10- 4-05	10-21-05	

Case Number.	Age.	Sex.	Admitted.	Discharged.	Died.
42,	22	M	10- 5-05	.....	10-16-06
43,	20	F	10- 8-06	10-17-06	.....
44,	14	F	10- 9-06	10-29-06	.....
45,	50	M	10- 9-06	.....	10- 9-06
46,	15	M	10- 9-06	.....	.....
47,	20	M	10- 9-06	.....	.....
48,	20	M	10- 9-05	.....	.....
49,	24	M	10-10-05	10-24-05	.....
50,	58	F	10-10-06	.....	10-27-06
51,	17	M	10-10-06	.....	.....
52,	22	M	10-10-06	.....	.....
53, .....	.....	M	10-15-05	.....	10-22-06
54,	19	F	10-17-06	10-26-06	.....
55,	43,	M	10-12-06	.....	.....
56,	9	M	10-12-06	.....	.....
57,	14	M	10-21-06	.....	.....
58,	32	M	10-23-06	.....	10-28-06
59,	36	F	10-28-06	.....	.....
60,	35	F	10-23-06	.....	.....

The following complications and sequelae were noted:

Typhoid roseola,	2
Rose spots absent,	1
Purpura simplex,	2
Furunculosis,	2
Jaundice,	1
Otitis media,	1
Orchitis,	1
Thrombosis (Int. Saphenous),	1
Cystitis,	1
Abscess (Hepatic),	1
Delirium (Mild),	5
Delirium (Maniacal),	1
Convulsions (Uraemic),	1
Typhoid fever with pregnancy,	2
Typhoid fever with Pulmonary Tuberculosis,	2
Typhoid fever with Broncho pneumonia,	4
Typhoid fever with Lobar pneumonia,	2
Miscarriage,	1
Hemorrhage,	4
Perforation,	4
Relapse,	2
Post-typhoidal Insanity,	1

Measures adopted by the Chief Engineer.

Water Districts.

Within the Newport drainage area are the villages of Glen Lyon, 3,400 population, and Lee Mine, Sheatown and Alden, total population 2,800, all supplied by the Nanticoke Water Company. However, Alden, population 1,700, is only partly so supplied—fifty-five taps. The Alden Coal Company furnishes water to its own plant and to most of the dwellings of the settlement.

Hanover Township and Hanover village in the Eighth Ward of Nanticoke borough, population 1,000, are furnished with water by the Spring Brook Water Company.

North of Nanticoke and the Susquehanna River, opposite the borough and communicating with it by bridge, is the village of West Nanticoke, population 1,500. It is located on a narrow strip of ground between the river and the mountain which parallels the river. On the same side easterly up stream, about half way to Plymouth, is the Avondale village and colliery. Here reside about 300 people. Both of these places are supplied by the Nanticoke Water Company, Avondale exclusively, but West Nanticoke contains forty-seven private wells and thirty-four springs in use. All told, the water company serves a combined population of 22,000 people.

low service and 214 of them were on the high service. Six of the August cases were on the low and the remaining nine were on the high service. Of the first 270 cases, 109 were on the low service and 161 were on the high service, which evidences the general distribution of the infection throughout the town.

Of the 437 cases reported, 247 were males and 190 females. Their ages, except two, together with the ages of those that died are shown below in semi-decades.

	Cases.	Per-centage.	Deaths.	Percentage of those ill.
Under 5 years of age,	15	3.43	1	6.65
Over 5, under 10,	40	9.15	1	2.5
Over 10, under 15,	54	12.35	2	3.70
Over 15, under 20,	93	21.28	12	12.90
Over 20, under 25,	77	17.62	9	11.68
Over 25, under 30,	65	12.58	5	9.09
Over 30, under 35,	25	5.72	2	8
Over 35, under 40,	28	6.40	5	17.85
Over 40, under 45,	24	5.48	5	28.83
Over 45, under 50,	14	3.20	2	14.29
Over 50, under 55,	5	1.14	3	60.
Over 55, under 60,	3	.68	2	66.66
Over 60, under 65,	1	.22		
Over 65, under 70,				
Over 70, under 75,	1	.22	1	50.
No record of age,	2	.45		
	437		50	

Here again is shown the predilection to the disease of those who are of a robust age at the height of their usefulness and earning capacity, as well as the loss sustained by the Commonwealth through the untimely death of this class.

In addition to the 437 cases in the borough, there were 75 other cases outside of the borough in the water company's district, making 512 cases supplied with public water. These 75 outside cases in the district were as follows:

Alden,	1
Sheatown,	17
Lee Mine,	2
Glen Lyon,	1
West Nanticoke,	51
Avondale,	3

The Lesson.

The striking fact, first noticed by the Commissioner of Health and taken as an index, is Glen Lyon's exemption. The other places got Harvey's Creek water unsettled. The Newport reservoir, beyond Nanticoke and intervening between it and Glen Lyon, intercepted the typhoid infection and proved a sufficient barrier to save the latter place from the scourge. This barrier was not removed nor the reservoir interfered with. It was not cut out of service during the epidemic for fear that unsettled water would carry poison to Glen Lyon. So subsidence was promoted by use of copper sulphate. In December arrangements were made with the water company for the emptying of the reservoir and its thorough cleaning and disinfection. This was done in the early months of 1906.

Below is given the results of water analyses made during the epidemic.

With the exception of Nos. 9, 10, 24, and 30 water analyses were made by Prof. W. H. Dean of Wilkes-Barre.

No.	Date.	Place of Sample.	Bacillus Coli Communis.
1	Sept. 2,	No. 313 E. Church St.,	Present.
2	Sept. 6,	Intake dam,	Not found.
3	Sept. 6,	Harveys creek, above,	Not found.
4	Sept. 6,	Bedlocks creek,	Not found.
5	Sept. 6,	Pikes creek,	Not found.
6	Sept. 8,	West Nanticoke Hotel,	Not found.

No.	Date.	Place of Sample.	Bacillus Coli Communis.
7	Sept. 9.	76 West Broad St.,	Present.
8	Sept. 9.	5 West Broad St.,	Present.
9	Sept. 17.	Newport reservoir,	Not found.
10	Sept. 17.	Newport reservoir (sediment included),	Present.
11	Sept. 18.	Nanticoke office,	Present.
12	Sept. 20.	Supply store,	Not found.
13	Sept. 26.	Coal company's office,	Not found.
14	Sept. 29.	Nanticoke store,	Present.
15	Sept. 30.	Outlet Harveys lake,	Not found.
16	Oct. 4.	Water company's office,	Not found.
17	Oct. 5.	Newport reservoir (blow off),	Not found.
18	Oct. 5.	Pipe end, Lee mine,	Not found.
19	Oct. 5.	Kelley's farm,	Not found.
20	Oct. 5.	Pipe end, West Ridge St.,	Present.
21	Oct. 5.	Pipe end, East Ridge St.,	Present.
22	Oct. 5.	Pipe end, East Church St.,	Present.
23	Oct. 7.	Intake dam,	Not found.
24	Oct. 9.	Intake dam,	Not found.
25	Oct. 11.	Intake dam,	Not found.
26	Oct. 11.	Newport reservoir,	Not found.
27	Oct. 14.	Pump house,	Not found.
28	Oct. 14.	Drug store, West Nanticoke,	Not found.
29	Oct. 14.	37 East Grand St.,	Not found.
30	Oct. 14.	153 West Green St.,	Not found.
31	Oct. 14.	103 West Main St.,	Not found.
32	Oct. 14.	10 West Green St.,	Not found.
33	Oct. 14.	16 West Centre St.,	Not found.
34	Oct. 14.	New High school,	Not found.
35	Oct. 17.	Tap, 153 East Main St.,	Not found.
36	Nov. 6.	Jaw Hill reservoir,	Not found.

This evidence indicates that stream pollution had disappeared effectually upon the cleaning up of the Hoover property. The last application of disinfectants in the barn-yard and about the property was on October first. The pollution remained in the mains and service pipes in some parts of the town, especially in the neighborhood of the dead end, and disappeared only after the caps had been removed from the ends of the mains and the mains thoroughly flushed by order of the Commissioner of Health. However, there was a possibility of rains washing infection from the water shed or of re-infection from convalescents, and so the extraordinary precautions were kept up until a late date. The use of copper sulphate solution at the intake dam was discontinued at the close of the epidemic.

There were exported from Nanticoke to distant places at least nineteen cases. So that from the Hoover case of typhoid 531 other cases followed and fifty deaths resulted. Had the attending physician reported the case to the State authorities the epidemic would not have occurred.

Permanent Safeguards on Lower Water Shed.

Respecting permanent safeguards, an improved patrol of the water shed below Harvey's Lake was established after the territory had been gone over by Department officers. The company's agent was instructed to make a thorough examination of every habitation and to see that all occupied estates be kept clean, more especially privies, barns, pig-pens, etc. All outhouses having no vaults were to be provided with them and to be located at safe distances from any natural water course. Where necessary, removable boxes were ordered to be placed in the privies, and all receptacles for sewage to be frequently inspected, disinfected, and at proper intervals have their contents removed and buried or otherwise properly disposed of. By May, 1906, all the dwellings had been visited and between fifty and sixty privies had been put in sanitary condition. On the water shed there are five settlements named Ceases Mills, fifty inhabitants, Lehman, two hundred inhabitants, Meeker, fifty inhabitants, Pikes Creek, seventy-five inhabitants, and Loyalville twenty-five inhabitants.

On May 9, 1906, two cases of typhoid fever were reported at Cease's Mills. Subsequently, it was discovered that the disease was not typhoid fever. However, the water company attended to disinfection and burial of all excrement. It appearing desirable that the patrolman should have authority to enter upon property and make inspections thereof, on June first the Commissioner of Health appointed William G. Edmunds deputy inspector of the Department to patrol Harvey's Creek water shed under pay by the water company.

At this time there was one case of typhoid fever on the shed. It was being vigilantly watched by the inspector and water company officials. Suspicion was attached to the well whose waters, upon a test, showed gross pollution.

Back in 1903, the water company had adopted plans for the erection of an impounding reservoir on Pikes Creek and began the laying out of a new eighteen inch pipe line from the pumping station in Nanticoke to the proposed reservoir, a distance of about six and a half miles.

Each subsequent year seven thousand feet of pipe line have been laid. During the season of 1905, a gang of seventy-five men were engaged on this pipe line work at a point above the intake dam on Harvey's Creek. Investigations did not reveal any sickness among the laborers. The Department required that portable privies be provided and that the men be compelled to use the same.

The new dam is to be an earth structure with concrete core wall extending to rock bottom, to be 1200 feet long and to give a maximum depth of twenty feet of water. On the site at present is a mill pond. The water level of the new reservoir is to be ten feet higher than the present water level. The new elevation will be 205 feet above the high water mark in the Newport distributing reservoir. The water area of the proposed reservoir is to be 147 acres and stored therein will be 400 million gallons. The water shed above this structure is well wooded, sparsely populated and easily patrolled. When completed, the entire town's domestic supply will be derived from this source. Harvey's Creek will be held in reserve, the collieries will be supplied with this water and it will be pumped. Therefore, a sanitary patrol of all of Harvey's Creek water shed is to be maintained indefinitely.

Out of the 332 occupied homesteads on the area below the lake, 89 properties were found to be in an unsanitary condition at some time during the year, subsequent to June first. Verbal notices to abate were issued and compliance had in 69 instances. They comprised the moving of the privy or building of a new vault in fifty-six cases, the reconstruction of a cesspool in two cases, the moving of one barn and two piggeries and the general cleaning up of sewage receptacles in eight cases.

Twenty cases are still pending. Every estate is visited once monthly.

Permanent Safeguards on Upper Water Shed.

Harvey's Lake is a natural body of water having a water surface of 1.05 square miles, extremely irregular in shape, three miles long from the outlet at the southwest end to the village of Alderson at the northeast end. At the northwest end is the village of Laketon and all around the shores are summer cottages and a State highway, eight miles long. At the southeast end is the village of Shawnese. Here are the two hotels and the terminus of the trolley line to Wilkes-Barre. At Alderson, the principal place—permanent population about four hundred—is the station on the Lehigh Valley Railroad and the picnic grounds owned and maintained by the railroad company.

At both these places there are steam-boat piers and also piers upon which are built restaurants.

The Lake Transit Company operates three steam-boats, each accommodating from fifty to eighty passengers. The Harvey Lake Steam-Boat Company operates two steam-boats, each accommodating seventy passengers. These crafts are provided with water closets. In the season the boats make regular round trips, this being the only means of public transportation. There are numerous piers at private residences and at cottage villages where the boats stop.

Public bath-houses at the picnic grounds are in general use. *Bathing from the cottages everywhere is the custom.

There are about two hundred cottages and dwellings on the shores. About forty of these are furnished with running water piped from springs on the hills, or pumped from the lake. Cesspools are common for closet drainage and in numerous instances wash water is piped to the lake.

The main hotel, the Oneonta, uses lake water for general purposes and disposes of the sewage and laundry drainage into a loose walled tank, twenty feet long and eight feet wide, having a partition wall across and provided with an overflow drain to the lake. A nuisance exists here and the pollution of the lake is apparent. A notice was served on the proprietor to abate the nuisance and at the close of the year negotiations were pending for the installation of improved disposal works.

The lake water shed comprises 6.7 square miles only. The runs flowing into it are small and no considerable part of the outflow from the lake is furnished by them. The source is principally from springs. The surface currents are sluggish and influenced mostly by winds. Opportunities for sedimentation and for natural purifying agencies to work assuredly minimize the possibility of pathogenic pollution reaching the outlet and passing below to the Nanticoke Water Company's intake.

At the outlet there is an artificial masonry spillway dam seven feet high on the inner side, which serves no purpose except to maintain the lake level at its former natural height, so it appears. About a quarter of a mile below it there is a dam across the creek, and 150 feet further down a second structure built to divert the flow into a race leading to a mill. When the flow from the lake is not naturally sufficient to operate the mill, it is increased by the manipulation of a valve on a pipe extending through the lake dam. The right to the use of such a drain is contested by interested parties. The lowering of the surface of the lake any considerable amount deteriorates the quality of the water to the annoyance of the cottagers and to the injury of the purity of the stream at the Nanticoke Water Company's intake.

The depositing of sewage, offal and rubbish along the shores is an established custom with which the water company's agent was unable to cope as a private citizen. On June 1, 1906, the Commissioner of Health appointed L. E. Agnew a Department inspector with instructions to patrol the lake water shed, stop nuisances, examine all estates and make systematic reports, under pay by the Water Company.

It has been a question how far the interest of the public health warrants interference with the place as a resort. Prohibition of bathing is not desirable, nor of the lake as a source of local water supply, provided the water be boiled. The dictates of common decency would condemn the depositing of garbage and sewage along the shores or into the waters. However, with no one to effect uniform compliance with sanitary observances, little can be accomplished. In September an assistant engineer was detailed to make a sanitary survey of the lake and its drainage area and to report as a basis of consideration of the subject by the Commissioner of Health. This field work was completed in October.

At the close of the year over fourteen hundred inspections had been made. The patrolman covers the entire territory once each week. The practice is to visit every occupied estate once each month.

There are 130 homesteads, including hotels open the year round, and 147 summer cottages on the water shed, making a total of 277.

One hundred and seventy-six of these have been found in a satisfactory condition and one hundred and one were found unsatisfactory. Fifty-seven abatements of nuisances have been reported and forty-four are pending.

The abatements comprised the building of fifteen new privy vaults, two cesspools, fifteen sewage receptacles cleaned out and twenty-five garbage dumps removed.

Below is shown a summary of the Nanticoke, Butler and Plymouth epidemics, which by comparison show that the results obtained at Nanticoke are most gratifying.

Plymouth.

1885.	Cases.	Deaths.	Pop.
April,	713	114	9,000
May,	261	....	....
June,	83	....	....
July,	31	....	....
August,	15	....	....
September,	1	....	....
	<hr/> 1104	<hr/> 114	<hr/> 9,000

Butler.

1903-04.	Cases.	Deaths.	Pop.
October,	47	111	18,000
November,	976	....	....
December,	222	....	....
January,	32	....	....
	<hr/> 1277	<hr/> 111	<hr/> 18,000

Nanticoke.

1905.	Cases.	Deaths.	Pop.
August,	15	50	15,000
September,	274	....	....
October,	99	....	....
November,	41	....	....
December,	8	....	....
	<hr/> 437	<hr/> 50	<hr/> 15,000

Considering the work that was accomplished in eliminating the source of infection and in view of the results of water analyses it seems fair to presume that the majority of cases that occurred during October and during the months of November and December were of secondary origin.

Here as in other places a lesson was learned at the expense of many lives, business depression and depreciated property valuation. Like the lamentable experience at Plymouth, this outbreak is a vivid reminder of the deplorable sequel of a single carelessly managed case of typhoid fever on a municipal water shed. The wisdom of our Legislators in enacting laws for the protection of the health of the people of the Commonwealth is nowhere better illustrated in recent health acts than by the law providing for the preservation of the purity of the waters of the State. The epidemic forcibly demonstrates the necessity of private and public water companies owning their water sheds or having absolute sanitary control of the premises of their tenants. Had patrols been established over the water sheds supplying the towns of Plymouth, Butler and Nanticoke it is altogether probable that these disasters would have been averted. The closing thought is well expressed by Taylor in his admirable report of the Plymouth epidemic of 1885 when he says "that in any case of typhoid fever, no matter how mild, nor how far removed from the haunts of men, the greatest possible care should be exercised in thoroughly disinfecting the poisonous stools."

THE SURVEY FOR MOSQUITO CONTROL.

H. L. VIERECK, Entomologist.

MOSQUITO INVESTIGATION.

As the principal object of this investigation was to determine the presence and breeding places of the malaria-bearing mosquito, it seems desirable to preface the report with a short review of our knowledge as to the relation between Malaria and Mosquitoes.

MALARIA AND MOSQUITOES.

These two have been so positively linked together that all crusades against malaria are based upon the important facts about mosquitoes and their habits that have been discovered within the last few years. It has been shown beyond all doubt that mosquitoes are, in addition to being spreaders of malaria, responsible for the spread of yellow fever and filariasis. To every thinking person the triumphs over malaria and yellow fever in Cuba and all over the civilized world were due only to the fact that men accepted and applied the truths that demonstrated the mosquitoes' guilt, and, in addition, made it clear that of all insect foes the mosquito could, in all probability, more easily be done away with than any other, and moreover, in getting rid of this foe to health and happiness we might at the same time make profitable improvements. Indeed, we as a nation realize that it is not impossible to do away with the spreaders of disease that, among other things, made the French lose their hold on the building of the Panama Canal, and made them relinquish that famous and immensely useful enterprise because their laborers were dying, victims of disease, over which neither the French nor anyone else in those dark days had any control, and because the fact that mosquitoes carry from the person sick with yellow fever or malaria the germs of these diseases to well persons, was not then known. Without this knowledge how could they hope to win, even though the remedy meant only the drainage or screening or oiling of all waters within one-half mile of the seat of operations. But we know, and go a-digging the "big ditch" with a confidence of our early success, because we first sent General Gorgas to duplicate what had been done in Cuba to stamp out yellow fever and malaria, mosquito-borne diseases, by the simple expedient of making mosquito breeding impossible. Why so ready to do this? Because we knew that General Gorgas understood the principles thoroughly—that he knew the haunts of the mosquito, and knew that the mosquito carries these dangerous diseases.

What has happened since General Gorgas arrived at Panama? The Canal strip has lost most of its mosquitoes, and we have thereby triumphed over those dread diseases that defied the French. The work of mosquito extermination and other health measures have reduced disease to the point of being little more common there than in the best managed and cared for of our American cities.

Malaria still occurs in Pennsylvania and, in addition to that, mosquitoes are a nuisance in our State. Are we Pennsylvanians going to stand for their presence in our midst any longer in the face of what has been done, notably in Cuba and Panama, by men of our own flesh and blood? So far as this Department is concerned, the answer is emphatically "no." It is for this reason that the problem has been studied in Pennsylvania, so that its Department of Health might show what was to be done, and thus clear itself of the charge of being a party to the perpetuation of mosquitoes and so, of malaria. Moreover, the Department's work in suppressing other diseases demanded that malaria, too, should receive consideration and be made impossible by resorting to the preventing measures to be based upon a thorough understanding of the problem as it exists in the State to which it is a servant.

MALARIA.

This is a disease caused by one of the simplest forms of animal life—a protozoan or amoeba-like animal which, being introduced when young, into the human blood stream by certain mosquitoes, enters into the red corpuscles of the blood where it develops or grows to be as large as a red corpuscle, but at the expense of the corpuscle's substance and vitality. The incubation or intermittent stage of the malaria corresponds to the time it takes for the parasite to grow to be as large as the red corpuscle; when it has reached this stage, it multiplies into young parasites which break through the red corpuscle's envelope. At this stage of the parasite's life in the blood, the chill of malaria comes on; then the young parasites greatly outnumbering their parents enter new red corpuscles. So, with each chill, the parasites increase in number until, if their development goes on unchecked, they may bring on the death of their victim through exhaustion, owing to the tissues of the body being robbed of the oxygen necessary to its life. When certain mosquitoes bite persons with the malarial parasite in their blood, some of the malarial organisms are taken into the stomach of the mosquito where they undergo sexual union then the fertilized female enters the stomach wall and in the muscular coat thereof develops and gives birth to innumerable young, which, after being released into the body cavity of the mosquito, find their way to the salivary glands and the ovaries of their host and thence into the blood of the person bitten by the mosquitoes thus infected.

EVIL EFFECTS OF MALARIA.

These are many, as might be supposed, considering the systematic operation of the malarial parasite throughout the body owing to its evil effect on the blood. In themselves the consequences of malaria are to be dreaded, but in addition to the lowered vitality that always results from an attack of this disease, the sufferer may become a prey to more dangerous disease and have, as complications, one or more of the following conditions: Inflammation of the intestines; inflammation of the kidney; rheumatism; lobar pneumonia; jaundice and dysentery.

MALARIA IN PENNSYLVANIA AND ADJOINING STATES.

Not until 1905 was malaria made reportable in this State like other communicable diseases, such as small pox. Since then, records of cases of malaria have accumulated, but the indications are that some time must elapse before we are given all the facts necessary to determine just to what extent the disease is prevalent. In the past no accurate records could be made owing to imperfections in the methods of diagnosis. These having been overcome, it is hoped sufficient interest will be taken in the matter to make its distribution well known. The imperfect records on file indicate that the disease is becoming uncommon. However, they also show that, from being uncommon, the disease sprang into prominence in New England after the Civil War until 1880 when it subsided, and that, in addition to this, in very recent years malaria has broken out as an epidemic, owing to the disturbance of Nature's balance of life in a marsh area in connection, in all probability, with the immigration of Italians from a malarial region in Italy.

YELLOW FEVER IN PENNSYLVANIA AND ADJOINING STATES.

This dread malady, while on record to such a frightful extent as having decimated the population of Philadelphia in 1793, appears never to have become indigenous, and, owing to modern quarantine methods, is no longer very likely to be introduced anywhere in Pennsylvania. This disease is not so well known as malaria; in fact, not even its specific cause has been discovered, though experiments have shown that whatever organism causes it, that organism is certainly transmitted from individual to individual by a certain mosquito. It is, in all probability, of such small size as to be beyond the power of mortal eyes to detect even through the highest power of the microscope.

FILARIASIS IN PENNSYLVANIA AND ADJOINING STATES.

There is no evidence of this ever having been even epidemic, and the only indications of its presence in this region are isolated cases brought from the tropics to local hospitals. The parasite causing this disease is a round worm living in the blood stream and in the mosquito.

WHERE MOSQUITOES BREED.

These insects breed in almost any standing or slow-running water, in which there are not enough of their natural enemies, such as small fishes and the worm-stage of certain water beetles. As a rule, the more stagnant the water, the better the chances for mosquito breeding.

HOW TO GET RID OF MOSQUITOES.

To permanently get rid of mosquitoes all standing or slow-running water must be looked after and be treated to meet the condition thereof that is responsible for the breeding of the mosquitoes. Waters that are of no use to the community, such as vacant lot and brick-yard ponds should be filled in and graded to the level necessary to bring about good drainage; ornamental and fish ponds should be kept in such a condition through cleaning of the edges and surface, that fishes already present or about to be introduced can get to every portion of the surface in search of their natural food, such as mosquito wrigglers. Rivers, streams and canals need to have their margins kept trimmed, so that the fishes present can gain access to every portion. In the marsh and marsh-like areas, filling in and grading or drainage is recommended, especially in marshes or portion of marshes where the natural state of things has been interfered with, as, for instance, through the building of a road.

In a comparatively few instances none of the above methods will be of use, or those ways of bringing about the desired result may not be applicable at once. In either case an application of fuel oil or kerosene, one ounce to 10 or 15 square feet of surface, is to be employed once every two weeks in cool weather between April and November, and once every week in hot weather. The oil should be applied cautiously where it is intended ultimately to resort to remedying the trouble through the introduction of natural enemies, such as fishes; the oil is practically useless in rivers and other streams, and is, where it is useful, only a temporary cure, as it stands to reason when we recall that it must be applied once or twice every two weeks to make it effective, and that at the end of a season of oiling, the pool or pools oiled are, if anything, in the absence of fresh applications of oil in the next season worse breeders of mosquitoes than in the beginning.

TO KEEP THE HOUSE FREE FROM MOSQUITOES.

Thorough screening of the house with netting or wire screens having 18 to 20 meshes to the inch, will keep mosquitoes from getting indoors. Should mosquitoes get in through opening of doors and windows, or through imperfect screening or absence of screens, their numbers can be reduced or even be done away with, by the use of a paddle made of an oblong sheet of wire gauze, such as is used in window screens, 4x8 inches, tacked onto a strip of wood of suitable size to serve as a handle. Armed with such a weapon, anyone can, by swiftly slapping the mosquitoes on the wall with a sheet of wire, soon destroy a sufficient number to make the task afford satisfaction.

LOCAL WORK.

Since the malarial mosquito does not fly more than one-half mile from its breeding place and, apparently only rarely as far as this, it is possible for any locality to free itself of the danger of infection with malaria, by bringing about a crusade against mosquitoes within its own territory and for one-half mile around the same.

WHAT IT IS GOING TO COST.

As would naturally be expected, the cost of carrying on the work above recommended will vary accordingly to the size and nature of area. In view of the fact, that in the main, the worst breeding places are in and around the larger centres of population, the cost will, in most cases, be in proportion to the relief afforded; especially is this true where the work at the same time improves the land close to houses for purposes of cultivation or ornamentation.

We have now presented the reasons for the prosecution of the work and how, in most instances, it may be done. Let us now consider the details of the task.

DIFFERENT KINDS OF POSSIBLE BREEDING PLACES. MARSHES AND SWAMPS.

In their natural condition such collections of water are so well provided with foes of the mosquito, such as water beetle and water bug larvae, dragon flies,

swallows, night hawks and bats, that epidemics of malaria may not appear through them. But, as soon as the natural condition is interfered with, by an interference with drainage, etc., by the building of roads, or through other improvements in these locations, malaria may set in, as it has set in on previous occasions. So, marshes and swamps must be carefully watched, and especially near growing towns they should be drained. Such drained marsh lands yield sufficient income to make their drainage profitable. Under some conditions it might be more expedient to create a lake or pond, into which a surrounding marsh could be drained. If so, the resulting pond would need to be cared for by stocking with fishes and other methods, in order that it might not in turn, become a mosquito breeder.

CROTCHES AND HOLES IN TREES.

Water holes left in sides of trunks of trees by decaying branches or otherwise, and crotches of trees may harbor enough of the disease carriers to become of importance. Should the trees be too healthy to be destroyed, these cavities need only to be filled up with cement to make them harmless.

SPRINGY GROUND.

Land under which springs are situated is usually in good condition to favor the formation of puddles. Such ground should have its springs located and drained through drain pipes, or in some other satisfactory way.

SPRINGS.

These afford but scant breeding area for mosquitoes, and can be walled in and covered effectively by a lid made of light wooded frame, over which some inexpensive cloth has been stretched, such as cheese-cloth or muslin.

PONDS.

Unless these are to be preserved for ornamental purposes, they should be drained or filled in. Should they, however remain, then it becomes necessary that they be stocked with small fish, such as sunfish. Furthermore, their surface and edges should be kept free from vegetation that defeats the good offices of the fish by sheltering the mosquito wrigglers from their attacks.

LAKES.

These are usually in such a state of natural balance that few, if any, mosquitoes breed in them. Such mosquitoes as do, find a home in lakes, as a rule, find it along the edges and surfaces where plants have grown up that afford protection and food to the mosquito wrigglers. What has been said about ponds, is therefore, with one exception, applicable here and is, of course, that there are probably few instances where it will prove profitable to fill in or drain a lake.

STREAMS.

These offer less work than other bodies of water in order to make them mosquito proof, since all that is necessary is to see to it that the edges of the stream are kept free of vegetation that would harbor wrigglers, and furthermore, that the bed of the stream shall always afford sufficient pitch to enable the water that passes through to do so as completely as possible. Where the stream is subject to puddle formation, during droughts, and it is deemed too expensive to give sufficient pitch to drain off all water, the temporary pools should be oiled, as elsewhere described, until all the stream is normal again.

HOOF PRINTS.

These are to be found chiefly in soft ground and often disappear before the drain pipe or drainage ditch. Where drainage is of no avail they should be filled in with earth.

WATER CRESS BOGS.

These are, as a rule, fairly mosquito-proof, and where the bog is well cared for, there ought to be a sufficient number of the natural enemies of mosquitoes to keep down the occasional wriggler that, in our experience, constitutes the sole wriggler population of the water-cress bog.

NURSERY PONDS.

These should be, as far as possible, treated in the same manner as ordinary ponds, barring, of course, the allusion to drainage and filling in the same. Where plants are grown that protect mosquito wrigglers from their natural enemies, the pond should be so constructed as to permit occasional flooding for short periods during which the fishes can get at their prey. Furthermore, the less dense the growth of plants, the less chance there will be for the mosquito wrigglers to evade their natural enemies.

ORNAMENTAL PONDS—LILY PONDS.

In so far as they have plants in them that afford protection to wrigglers ornamental ponds should be treated in the same way as nursery ponds.

WELLS.

Mosquitoes also breed in wells. There is one well on record where, at a depth of 119 ft. the surface water had wrigglers in it. They should, therefore be so topped as to make it possible to cover them in the same way as springs.

CANALS.

Well kept canals are practically mosquito-proof. What has been said about streams, may in some cases, be applicable to canals, but further than this, they offer no difficulties, excepting when they become totally abandoned, in which case in default of being restored to usefulness, they should be treated as ponds are treated. Where permanent abandonment is expected, drainage or filling in is the solution, and should be insisted on.

DAMS.

These present pretty much the same problems as ponds and should be treated accordingly, though, of course, drainage is usually out of the question, and filling in is rarely, if ever, to be thought of in this connection, except, in part, as in the drainage of a useless dam, where it may be necessary to fill in the shores.

VACANT LOTS.

These and imperfectly drained lands of all kinds, where puddles and temporary ponds or bodies of a more or less persistent character may form, should not be tolerated, for it is in such that mosquito-breeding becomes intense, and, furthermore, such places are anything but pleasing to the eye, and nuisances in more ways than one. Their situation, and in fact everything about them makes their destruction a feature of every community's house-cleaning. For any community to permit them to exist, is to invite just criticism, in addition to their unsightliness and danger as breeders of disease. Drainage or, better, grading or filling in are here the needs. Until this is done, and it should be done as soon as possible, oiling should be resorted to, but the oiling must not be looked upon as a permanent cure but only as a make-shift between a condition and its known and possible permanent cure.

RESERVOIRS.

Most of these, it is assumed, are mosquito-proof. Such of them as are not can be made so by applying the same treatment as is applied to ponds.

TIN CANS AND OTHER UTENSILS THAT GATHER WATER.

Much of this sort of encouragement to mosquito-breeding will disappear with the "vacant lot nuisance." It need hardly be added that all worn out vessels such as tin cans, that are thrown away, should be buried or be so crushed as to make them harmless from the mosquito standpoint, since it is nothing less than criminal negligence to let them stand around to catch rain water and breed, not merely nuisance mosquitoes, but disease-bearing mosquitoes as well.

PUDDLES.

These are usually of no great consequence, and can readily be done away with simply by filling operations or grading.

DITCHES AND GUTTERS.

If these be kept free of debris and vegetation and so pitched that the water in them may run off, no breeding of mosquitoes will take place in them.

WATER TANKS, CISTERNS, RAIN-BARRELS AND SIMILAR RECEPTACLES.

Such of these as are a positive necessity should be covered in the same way as that recommended for springs, if they are open and harbor mosquitoes, as is usually the case.

WATER TROUGHS.

If used every day, there is little, if any, trouble to be expected from this source. When out of use, say, for more than a week at a time, the water in them should be changed each week, which procedure will cut off the mosquitoes that may have become established.

CHOKED SPOUTS.

These may bring about pools on roofs where mosquitoes may breed until detected by accident, or only after a search for the possible cause of the nuisance or even menace to health. Owing to the difficulty in the way of the regularly appointed authorities in ferreting out defects like this, every member of the community must be asked to report such defects, should he come across them in his daily walks.

HOUSE-BASINS, ROAD-BASINS, SEWERS.

The proper procedure with these is either to drain them completely or change the water in them each day. Where these requirements cannot be met, oiling once each week is recommended.

CESSPOOLS.

Here oiling once a week is recommended, awaiting the installation of a drainage system that will more radically effect a remedy of the evil.

Some of our small towns, where cesspools are still the rule, have these and these alone to blame for the presence of mosquitoes in their midst. The mere fact that the mosquitoes breed in such vile surroundings in this instance ought to make every householder eager to co-operate in extending the preventive measures outlined.

VEGETATION.

Vegetation plays no small part in breeding, in that it furnishes mosquitoes food when we are not the victims for it is well known that when the female mosquito, the sex that bites, does not get a blood meal, she subsists on the juice of plants. Since the larvae depend, in great measure, some of them probably entirely on plant life for food, it is easy to understand how the reduction of plant life in waters breeding mosquitoes will tend to reduce the mosquito population of such waters.

Forget-me-not plants, water cress and certain aquatic plants, the leaves of which lie on the surface of the water in which they grow, offer protection to mosquito larvae, especially to the disease-bearing kind. The forget-me-not plants should therefore not be permitted to grow hanging over into water, but free from the same. Water cresses should be kept free from the margins of waters in which they grow, and if possible, sufficiently apart to permit fish to find their way among them. The same can be said for the lily plants and allied aquatic forms of vegetable life. For further information, the reader is referred to the remarks under water cress farms and ponds.

FISH AND OTHER NATURAL ENEMIES OF THE MOSQUITO.

Of all the natural enemies of the mosquitoes, and there are too many to enable us for want of space to consider all of them, small fish, as sunfish and minnows are most effective from the practical point of view, in the light of our present day knowledge. There are certain birds that devour mosquitoes among other insects that they capture for prey. Of these the most noteworthy are the whip-poor-will and the night hawk. Bats, too, are entitled to special mention in this connection.

The Department has had the co-operation of the State Fisheries Commissioner in the mosquito crusade, the latter having furnished this Department with

sunfish for the stocking of waters where their good offices were manifestly necessary. Through the co-operation of these two Departments, it is intended to continue the distribution of sunfish wherever they are needed to keep down disease-carrying mosquitoes and others.

OILING.

Only where temporary methods are unavoidable, or where it is impossible to treat the conditions by means of more permanent and therefore, cheaper means, is the use of fuel oil or kerosene oil recommended. This should be applied at least once every two weeks, one application a week being recommended during the warmest part of summer, say in July, August and September, in order that the specimens that may have escaped one application may be killed off by the succeeding films of oil. In most instances a sprinkling can will suffice, since the oil, as goes without saying, spreads out over the surface of the water treated. Where extensive spraying or sprinkling of oil is to be done, by far the most economical method to employ is, a barrel pump with hose and vermored nozzle. In no case should more than one ounce of oil be applied to from 10 to 15 feet of surface, as to do so, is not to waste the oil, but in the case of ponds, later to be cared for otherwise, to destroy not only the mosquito wrigglers present but such natural enemies of mosquitoes as may be present in addition to our mosquito foes.

SUMMARY OF THE ABOVE PRACTICAL POINTS.

On the preceding pages have been recorded what it is believed, in addition to the circular prepared in this work, are the essential points aiming toward a thorough and complete solution of the mosquito problem in Pennsylvania.

The data on which this report and these circulars were based have been gleaned from the best authorities on the subject, the investigations of the writer in New Jersey and Connecticut, and the Pennsylvania Mosquito Investigation of the writer and Dr. J. Irwin Zerbe, which latter was made during the summer of the past year, the field work having been started in the middle of May and terminated by the middle of September.

The work was conducted under the guidance of the Commissioner of Health and carried out so as to insure the greatest good of the greatest number and at the same time make possible the summing up of the problem as it stands in Pennsylvania in such a comprehensive manner as to make this resulting report serviceable to the residents of the State, no matter where their homes may be.

We believe that this has been accomplished by an inspection of the following cities and other places, all of which were reported upon:

Principal Cities.

Philadelphia,
Pittsburg,
Allegheny,
Scranton,
Reading,
Erie,
Wilkes-Barre,
Harrisburg,
Lancaster,
Altoona,
Allentown,
Bradford,

McKeesport,
Chester,
York,
Williamsport,
New Castle,
Easton,
Norristown,
Shenandoah,
Shamokin,
Lebanon,
Pottsville,
Draddock,

with a total population of not less than 2,541,667; and the following places, which were visited by request, for the purpose of combatting malaria in the more malarious regions, or for the purpose of perfecting the comprehensiveness of the report:

Montgomery Ferry,
Laporte,
Camp Hill,
Conemaugh,
Middletown,
Columbia,
Steelton,
Ardmore,
Dayton,
Juniata,
Holidaysburg,
Springdale,

Minersville,
Schuylkill Haven,
West Pittston,
Exeter,
Wyoming,
Forty Fort,
Dorranacetown,
Kingston,
Edwardsville,
Carlisle,
Harvey's Lake,

with a population of 79,453.

The facts were gathered therefore from an area containing nearly half the population of the State and presenting all the diversities of surface and soil that it is possible to suppose exist throughout the State.

Had it not been for the courtesy of the officials and residents of the places visited, much of the information gained would not have been accessible. To all of these we are deeply indebted. Dr. H. C. McCook, the veteran naturalist and Divine, gave the freedom of his estate, "Brookcamp," Devon, Pennsylvania, to the Department's expert on mosquito investigation during the entire summer. For this kindness we wish to give sincere thanks. Through correspondence other places were reached and furnished with requested information or fish, or both, wherever necessary.

BRIEF VIEW OF THE PROBLEM IN THE STATE TAKEN AS A WHOLE.

The really important result of the investigation is the confidence it allows as to the probable outcome of the whole problem, in that it has shown that nowhere in the State is there an indication that the local problem is beyond the means of the community involved to solve. That it is essentially a local problem, as in adjoining States, is certain with the exception of that portion of the State lying within a radius of say 38 miles of Salem, New Jersey, from which place or its vicinity points as far up the Delaware as the City Hall, Philadelphia, get greater or less numbers of "the Jersey Mosquito," more properly speaking, "the salt-marsh" mosquito, which undoubtedly flies even greater distances. But this mosquito is, in all probability, the only one of our possible 50 species that flies further than one-half mile, and moreover, is not known to carry any disease. Since, then, it does not seriously affect property values in Pennsylvania, and, moreover, is never troublesome, except perhaps, in the "Neck" of Philadelphia and to the South of this point there is nothing about it to be considered more than a casual nuisance, and such even only in the extreme southeastern part of the State. Furthermore, the systematic solution of the New Jersey "Mosquito Problem," by appropriation of New Jersey's Legislature, promises to at the same time relieve Pennsylvania of its salt marsh mosquito nuisance, since, to make the matter more clear, this mosquito does not breed in Pennsylvania, but comes to us only in the salt marshes of New Jersey.

This species eliminated, our problem is strictly local, and in the light of our present knowledge, any person or community can get rid of the mosquito menace or nuisance by seeing to it that mosquito breeding is interfered with for one-half mile in every direction around their dwelling or dwellings. In view of this fact how can anything but indifference be responsible for the continuance of mosquitoes in a given community? The machinery of the Health Departments and Boards, State and local, is inadequate, and indications are strong that they always will be necessarily inadequate, through lack of funds, to enter into systematic extermination of mosquitoes without the co-operation of all the people, but since it has been abundantly shown that local extermination is possible through the efforts of citizens in a given locality, in co-operation with health authorities, State and local, to what else can we ascribe the presence of mosquitoes in this State but blindness to the light that practical knowledge has thrown on the whole subject?

In this connection it may be well to reinforce the preceding statements with a quotation from an article "Does Extermination Exterminate Mosquitoes?" in which the author, Mr. William J. Matheson, after describing his efforts along these lines on and surrounding his Long Island summer home at Lloyd Neck, with a frontage on Oyster Bay and Lloyd Harbor, said: "So far as my experience goes it has been demonstrated that mosquitoes can be as completely exterminated in any locality as dirt can be swept from a building, or as weeds from a walk with the possible exception of *Culex sollicitans** and with the exercise of no more intelligence and much less labor than is required in the performance of many domestic duties. My experience would lead me to conclude that if mosquitoes continue to exist in any locality, it is because the people are too indifferent to the annoyance to take the trouble to be rid of it."

THE DIFFERENT KINDS OF MOSQUITOES IN PENNSYLVANIA.

With the exception of the elevated parts of the northern section of the State, where spruce trees grow and the river valleys in the southern part of the State, nearly all of the area of our Commonwealth has vegetation of that one kind that is dependent on certain means of temperature and moisture and is known as Alleghenian or Humid Transition Zone. Even the exceptions to this, known respectively as the Canadian Zone, or Spruce Belt, and the Carolinian Zones, are not so different from the predominating region, or Transition Zone, as to stand in the way of the distribution throughout the State of the more important mosquitoes. With these facts in mind, it is easy to understand why the malarial mosquito and therefore malaria has occurred in all parts of the State. There are, in all probability, fifty or more than fifty distinct species

*The Salt-Marsh Mosquito alluded to above.

of mosquitoes to be found in Pennsylvania. Since the primary aim of the Department was the determination of the most essential facts in relation to the suppression of malaria, there was no reason for searching for all the different kinds, although collections were made throughout the State. Arranged in sequence, according to their economic importance, the species that are known to inhabit, or likely to be found inhabiting, Pennsylvania, are as follows:

ACTUAL AND POSSIBLE DISEASE CARRIERS.

The Four-Spotted *Anopheles*. (*Anopheles maculipennis*, Meigen; or *Anopheles quadrimaculatus*, Say.) The occurrence of this species coincides quite naturally with the appearance of malaria, since it is, in the light of present knowledge, the only species of mosquito in Pennsylvania that transmits malaria from person to person. This species occurs throughout the State but is comparatively speaking, rare. It has the characteristic pose to be noted among the *Anopheles* in the illustration given in this report, and may be distinguished from the two additional species of *Anopheles* found in our State by the palpi, or structures parallel to the proboscis or beak, being uniformly light brown. Its wings are devoid of any marks, excepting the four so-called spots, which are really due to a greater abundance of scales in the four different species, the scales at these points being of a darker brown than the other scales on the wings. It is these four so-called spots that have given the species its name. In the larval stage it is impossible to distinguish this species from the other two species of *Anopheles* or dapple-winged mosquitoes found in Pennsylvania. The species is said to fly only at night, and is capable of breeding in almost any water that will breed any kind of mosquitoes. Hence, the presence of other kinds of mosquito than this is to be regarded as a harbinger of malaria. The malarial mosquito is with us all the year but is active on the wing only from June until late in the fall.

The Mottled-Wing *Anopheles*. (*Anopheles punctipennis*, Say.) This species occurs rather abundantly throughout the State and breeds in the same places as the preceding, from which it may be distinguished by the wings having yellow marks, instead of the so-called dark spots. Its palpi are, like the preceding species, i. e., of one color, or concolorous. In the larval stage it cannot be separated from the four-spotted *Anopheles*. It also flies at night, and stays with us all the year but is on the wing only from June until late in the fall. With the exception of the gallinipper, or fringed-legged mosquito, it is the largest species in the State. Indications are that if proper experiments shall be conducted, this species, too, will be found to carry malaria.

The day-light *Anopheles*. (*Anopheles crucians*, Wiedmann.) This is easily recognized by the wings having more than four of the so-called spots that are found in the four-spotted *Anopheles* and furthermore, by the palpi having silvery rings composed of scales. The larva is not separable from the larvae of the preceding species. This species has been taken only in Chester. The indications are that it is confined to the southeastern portion of the State, but it may, in addition be found in the river valleys in the extreme southern part of the State. It seems to be rare in Pennsylvania, and nothing is known about its relation to malaria, though it may yet be shown that it, too, carries that disease.

The Tree-Hole *Anopheles*. (*Anopheles barberti*, Coquillett.) This species has not been taken in Pennsylvania but indications are that it may be found in the river valleys of the extreme southern portion of the State during July, August and September. It may be known by the wings, which are devoid of the so-called spots, and, in addition, lack any other marks, excepting such as are made by the scales along the veins and along the edges of the wings. In the larval stage it may be distinguished from the other larvae by the very dark head and the short anal gills. It breeds only in the water that collects in hollowed out portions of trees. There is no knowledge concerning its relation to malaria, though this, too, may be a transmitter of that disease.

The Yellow-Fever Mosquito. (*Culex (Stegomyia) calopus* Meigen, or *Stegomyia fasciata*) This is the species which transmits or carries yellow fever. That it has been in Pennsylvania there can be no doubt, but in view of our knowledge on the subject and the recent investigation, the indications are that this species which was introduced into Pennsylvania, certainly Philadelphia, from the tropics by trading vessels, has never become indigenous, but, in all probability, died out before the winter of the same years in which it was introduced. It is not a conspicuous species and may be recognized by the marks on the back of the thorax which consist of four lines composed of silvery scales, two of which extend from the anterior to the posterior edge of the back of the thorax, and running parallel to the mid-line of the latter. The other two lines are shorter and oblique, extending from the sides near the middle of the back of the thorax to a point through the posterior edge of the back of the thorax and near the parallel lines. The larva is very like one of the species of the salt-water mosquitoes occurring in New Jersey. It has a very short syphon, or breathing tube, which is, approximately, two times as long as it is wide at the base.

The Rain-Barrel Mosquito, or the House Mosquito. (*Culex pipiens* Linneus.) It is claimed that this species has been introduced from Europe. It occurs all over the State, and is especially to be found breeding in the water of rain barrels. In the adult stage, it is perhaps the commonest mosquito nuisance of the household. In the tropics it transmits a disease known as filariasis by carrying a round worm, the cause of this disease, from person to person. It, in all probability, does not transmit disease in Pennsylvania, except, perhaps, in a mechanical way, as flies transmit typhoid fever. Its wings are not spotted. The legs and beak are unbearded and, with the exception of the rather well-defined white bands at the base of the backs of the abdominal segments, it is uniformly brown or yellowish in color. The larva, when it has completed its growth, is 28-100 to 32-100 of an inch (7 to 8 mm.) in length, and has a syphon, or breathing tube, which is, approximately, as long as the thorax of the larva is wide.

THE OTHER SPECIES OF MOSQUITOES.

The following, are, as yet, of no further importance in sanitary work than that their presence in standing water indicates, in a general way, that the water, in which they are found is likely to furnish a breeding place for the disease-carrying mosquitoes, even though the latter be not found associated with them after one or even more separate observations or examinations have been made.

All of the following species can be identified by the interested person referring to the following bulletins published by the United States Department of Agriculture, Bureau of Entomology, namely: "A Classification of the Mosquitoes of North and Middle America," Technical Series No. 11, prepared under the direction of the Entomologist, Dr. L. O. Howard, by D. W. Coquillett; "A Key to the Known Larvae of the Mosquitoes of the United States," by Harrison G. Dyar, Circular No. 72.

The White-Banded Salt-Marsh Mosquito. (*Culex (Ochlerotatus) sollicitans*, Walker.) The important facts about this species have already been alluded to in the preceding portion of this Report.

The Tree-Hole Mosquito. (*Culex (Ochlerotatus) triseriatus* Say.) This species occurs all over the State and is, possibly, quite a nuisance, more especially to dwellers near woodland. Like the tree-hole *Anopheles*, it breeds in the water-filled cavities of trees. However, in addition, it breeds in rain-barrels. We have evidence that it occurs in Pennsylvania, at least from the early part of June until early in September.

The Woodland-Pool Mosquito. (*Culex (Ochlerotatus) canadensis* Theobald.) This is a species that appears in the spring of the year when it breeds in temporary woodland pools. This is, undoubtedly, prevalent throughout the State and a nuisance to people who live close to woods.

The Swamp Mosquito. (*Culex (Ochlerotatus) sylvestris*, Theobald.) This occurs all over the State in woodland rain-puddles, etc., from June until late in the fall, and is quite often one of the troublesome species, since it frequents houses and gardens.

The Brown-Striped Mosquito. (*Culex (Ochlerotatus) pretans*, Grossbeck.) This is a species that may be very troublesome. This is on record as occurring from the middle of July until the middle of September, and is, probably, to be found only in the mountainous sections of our State, places like, for example, the Lehigh Valley, in which valley it was captured by the writer.

The Irritating Mosquito. (*Culex (Taeniorhynchus) perturbans* Walker.) This is a very local species, and may be found throughout the State. It has actually been taken in Chester. Its visits are made during May, June, July and August.

The Big Wood Mosquito. (*Culex (Janthinosoma) posticata* Wiedeman; or *Culex musica* Say; or *Janthinosoma*, Say, Dyar and Knab.) This develops rapidly in rain-puddles, but is, to our knowledge, rare, and, in all probability, confined to the valleys of the rivers of the State. It starts to make its appearance in the latter part of June, and has been found as late as the early part of September. Dr. Henry Skinner found a specimen of this species in his house near the heart of Philadelphia.

(*Culex (Ochlerotatus) varipalpus*, Coquillett.)

The Three-Striped Mosquito. (*Culex (Ochlerotatus) Trivialis*, Coquillett.) This is a woodland species of the summer, and does not seem to make itself a nuisance anywhere.

(*Culex (Ochlerotatus) bimaculatus*, Coquillett.) What has been said about the three-striped mosquito probably holds for *varipalpus* in this species.

The Rock-Pool Mosquito. (*Culex (Ochlerotatus) atropalpus* Coquillett.) This may be found in pot-holes along streams during the summer.

(*Culex (Culiseta) consolineus*, Desvoidy.) This, perhaps, occurs rarely in pools during the summer.

(*Culex (Culiseta) absorbtinus*, Felt.) This breeds in permanent water. Careful collecting may reveal it in the northern portions of the State.

The White-Lined Mosquito (*Culex (Pneumaculex) signifer*, Coquillett.) This species, like the three-lined mosquito, lives in hollowed-out portions of trees and in rain barrels. It is a large species, and is of interest chiefly because it resembles, in a general way, the yellow-fever mosquito, from which it may

readily be recognized by the lines on the back of the thorax, the latter having eight lines instead of four, as is in the case in the yellow-fever mosquito.

The Sapphyr-Lined Mosquito. (*Euratoneus sapphyrrina*, Osten-Sacken.) This is one of the very few mosquitoes that, so far as our knowledge goes, does not bite. It is, therefore, only of scientific importance. It has actually been taken in Philadelphia.

(*Culex*, (*Janthinosoma*) *varipes*, Coquillett.) This is, probably a resident of Pennsylvania. It is only, so far as known, of scientific importance.

The Mottled Mosquito. (*Culex* (*Grabhamia*) *discolor* Coquillett.) With the exception of the *Anopheles* mosquitoes, this is the only species in the State that has the so-called spots on its wings. It is easily recognized by this character. It is not known to bite. This species may be found developing with celerity in rain-puddles during June, July and August.

The Spotted-Legged Mosquito. (*Culex* (*Grabhamia*) *jamaicensis* Theobald.) This is found but rarely in June and August, and is, probably, confined to the southeastern portion of the State. It develops rapidly in pools.

The Black-Tailed Mosquito. (*Culex* (*Melanoconton*) *melanurus* Coquillett.) This species may be found in Pennsylvania in May. Its larvae hibernate in permanent pools. In all probability, this does not bite.

The Little Black Mosquito. (*Culex territans*, Walker.) This is sometimes found abundantly and associated with *Anopheles punctipennis* and *maculipennis*. This does not bite.

The Fringe-Legged Mosquito, or Gallinipper. (*Protophthora ciliata* Fabricius.) This occurs unusually throughout the State in temporary puddles. Its bite is not so irritating as that of the other mosquitoes, though it is the largest species with us. It is, to some extent, beneficial in that it devours larvae of other mosquitoes quite ravenously and will even turn to cannibalism when other mosquito larvae are not to be found. It is one of the summer species.

The White-Dotted Mosquito. (*Culex restuans*, Theobald.) This breeds in puddles and rain-barrels and is one of the species that start breeding in May and are to be found in pools as late as October.

The Pitcher-Plant Mosquito. (*Wyeomyia smithii*, Coquillett.) This species breeds in the water that collects in the pitchers of the leaves of the pitcher-plant, which latter is found in cold-bogs. The adults, which are not known to bite, start to make their appearance near the end of May and from then on until as late as early in November.

The Brown Salt-Marsh Mosquito. (*Culex* (*Ochlerotatus*) *cantator*, Coquillett.) This is one of the summer salt-marsh species which migrates with the ring-legged salt-marsh mosquito. Though it has not yet been found in Pennsylvania, it may, probably be found in the same localities as the latter species.

The Little Smoky Mosquito. This is a species of the rain-puddles, that begins to breed in April and has been taken as late as the latter part of May.

The following species all occur in early spring and, with the exception of the last four, are to be expected only in the mountainous sections of our State:

Fitch's Mosquito. (*Culex* (*Ochlerotatus*) *fitchii*, Felt and Young.)

The Inconspicuous Mosquito. (*Culex* (*Ochlerotatus*) *inconspicuous*, Grossbeck.)

Culex (*Ochlerotatus*) *auratoides*, Felt.

The Unbanded-Legged Woods Mosquito. (*Culex* (*Ochlerotatus*) *puncticeora*, Kirby.)

Culex (*Ochlerotatus*) *impiger*, Walker.

The Golden-Scaled Mosquito. (*Culex* (*Ochlerotatus*) *aurifer*, Coquillett.)

The Brown-Striped Woods Mosquito. (*Culex* (*Ochlerotatus*) *abfitchii*, Felt; *Culex stiphonalis*, Grossbeck.)

Culex (*Ochlerotatus*) *cinnereoborealis*, Felt and Young—*Ochlerotatus tricherus*, Dyar.

Dyar's Mosquito. (*Culex culicella dyari*, Coquillett.)

Culex (*Ochlerotatus*) *subcantans*, Felt.

Culex (*Ochlerotatus*) *lazarensis*, Felt.

The Scale-Winged Mosquito. (*Culex* (*Aedes*) *sylvicola*, Grossbeck—*Aedes grossebeckii*, Dyar and Knab.)

The Pale-Haired Mosquito. *Culex* (*Ochlerotatus*) *pallidohirtii*, Grossbeck.

THE LAW UNDER WHICH MOSQUITOES MAY BE EXTERMINATED— No. 218.

AN ACT

Creating a Department of Health and Defining its Powers and Duties.

Section 8. It shall be the duty of the Commissioner of Health to protect the health of the people of the State, and to determine and employ the most efficient and practical means for the prevention and suppression of disease.

The Commissioner of Health shall cause examination to be made of nuisances or questions affecting the security of life and health in any locality, and for that purpose the Commissioner, and any person authorized by him so to do, may, without fee or hindrance, enter, examine and survey all grounds, vehicles, apartments, buildings, and places within the State, and all persons so authorized by him shall have the powers and authority conferred by law upon constables.



THE DIVISION OF ACCOUNTS.

E. I. SIMPSON, Chief.

[REDACTED]

THE DIVISION OF ACCOUNTS.

FINANCIAL REPORT.

The Commissioner begs leave to respectfully report that on the date of his commission, June 6th, 1905, three appropriations had been made by the Legislature of 1905 for the use of the several divisions of the Department, as follows:

Act No. 506, for general salaries and expenditures of the Department for two years ending May 31st, 1907,	\$300,000 00
Act No. 221, for salaries and expenditures of the Bureau of Vital Statistics for the two years ending May 31st, 1907,	18,000 00
Act No. 219, for emergencies,	50,000 00

That there have been received from the Auditor General warrants on account of the General Fund, as follows:

July 7th, 1905,	\$25,000 00
October 10th, 1905,	55,000 00
March 6th, 1906,	32,500 00
June 5th, 1906,	37,500 00
December 20th, 1906,	37,500 00
Making total receipts December 31, 1906,	\$187,500 00

That the expenditures from June 6th, 1905 to December 31st, 1906 on account of General Fund have been as follows:

Advertising rules and regulations,	\$1,956 96
Advisory Board, traveling expenses, attending meetings,	53 66
Commissioner's traveling expenses,	1,627 89
Distribution of diphtheria antitoxin,	14,367 71
Salaries, antitoxin division,	2,783 40
Inspecting, disinfecting, quarantining, etc., on account of diphtheria,	3,486 85
Inspecting, disinfecting, quarantining, etc., on account of scarlet fever,	2,323 69
Inspecting, disinfecting, quarantining, etc., on account of smallpox,	4,044 46
Vaccinations,	3,497 56
Inspecting, disinfecting, quarantining, etc., on account of typhoid fever,	3,331 87
Inspecting, disinfecting, quarantining, etc., on account of cerebro-spinal meningitis (epidemic),	21 70
Inspecting, disinfecting, quarantining, etc., on account of tetanus,	11 73
Inspecting, disinfecting, quarantining, etc., on account of tuberculosis,	24 50
Inspecting, disinfecting, quarantining, etc., on account of measles and mumps,	47 78
Establishment and maintenance of Laboratory,	2,337 64
Collecting, tabulating and filing morbidity statistics, ..	7,695 33
Mosquito investigations,	1,576 70
Inspecting and abating nuisances,	7,744 86
General office expenses,	4,171 16
Amount carried forward,	\$61,105 45

Amount brought forward,	\$61,105 45	
General salaries,	37,310 65	
Sanitary Engineering Division, salaries, traveling expenses, etc.,	17,029 46	
Closing work of old Board of Health and transferring records to the new department,	502 10	
Legal services,	515 88	
Collecting and recording marriage statistics,	889 44	
Attending scientific and educational meetings, etc.,	331 15	
Organizing local Boards of Health,	11 30	
Total expenditures,	\$117,695 43	
Cash balance on hand December 31, 1906,	69,804 57	\$187,750 00

Note: That the following amounts were paid to the Department by the Girard Trust Company, being interest on deposit balances:

June 26th, 1906,	\$306 27	
November 30th, 1906,	576 48	
December 26th, 1906,	665 56	
December 29th, 1906,	2 20	\$1,550 51

That the same were returned to the State Treasurer as follows:

June 26th, 1906,	\$306 27	
November 30th, 1906,	576 48	
December 26th, 1906,	665 56	
December 29th, 1906,	2 20	\$1,550 51

That there have been received from the Auditor General warrants on account of the Bureau of Vital Statistics, as follows:

July 7th, 1905,	\$2,250 00
October 9th, 1905,	2,250 00
December 11th, 1905,	2,250 00
March 6th, 1906,	2,250 00
June 5th, 1906,	2,250 00
October 9th, 1906,	2,250 00
December 17th, 1906,	2,250 00

Making total receipts December 31, 1906, \$15,750 00

That the expenditures from June 6th, 1905, to December 31st, 1906, on account of Bureau of Vital Statistics have been as follows:

General office expenses,	\$291 42	
Postage, expressage, etc.,	3,599 09	
Salaries,	9,780 45	
Traveling expenses,	74 55	
Total expenditures,	\$13,745 51	
Cash balance on hand December 31, 1906,	2,004 49	\$15,750 00

Note: That the following amounts were paid to the Department by the West End Trust Company, being interest on deposit balances:

October 17th, 1905,	\$10 41	
April 22nd, 1906,	24 11	
August 31st, 1906,	10 24	
November 28th, 1906,	3 56	
Total,	\$48 32	

That the same were returned to the State Treasurer as follows:

June 26th, 1906,	\$34 52	
November 27th, 1906,	10 24	
November 28th, 1906,	3 56	\$48 32

That there have been received from the Auditor General warrants on account of the Emergency Fund, as follows:

September 30th, 1905,	\$10,000 00
January 15th, 1906,	16,870 21
Making total receipts December 31, 1906,	<u>\$26,870 21</u>

That the expenditures from June 6th, 1905, to December 31st, 1906, on account of the Emergency Fund have been as follows:

Disinfecting and quarantining on account of diphtheria,	\$15 00	
Disinfecting and quarantining on account of scarlet fever,	6 50	
Disinfecting and quarantining on account of smallpox,	1,432 71	
Disinfecting and quarantining on account of typhoid fever,	1,792 32	
Vaccinations,	141 50	
Bills of the old State Board of Health contracted on account of smallpox epidemic and unpaid June 6th, 1905,	16,803 06	
Total expenditures,	\$20,191 09	
Cash balance on hand December 31, 1906,	6,679 12	<u>\$26,870 21</u>

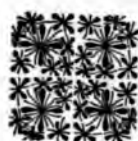
Note: That the following amounts were paid to the Department by the Girard Trust Company, being interest on deposit balances:

January 18th, 1906,	\$29 19
August 27th, 1906,	109 17
December 24th, 1906,	70 08
Total,	<u>\$208 44</u>

That the same were returned to the State Treasurer as follows:

June 26th, 1906,	\$29 19	
December 24th, 1906,	179 25	<u>\$208 44</u>

SAMUEL G. DIXON,
Commissioner.

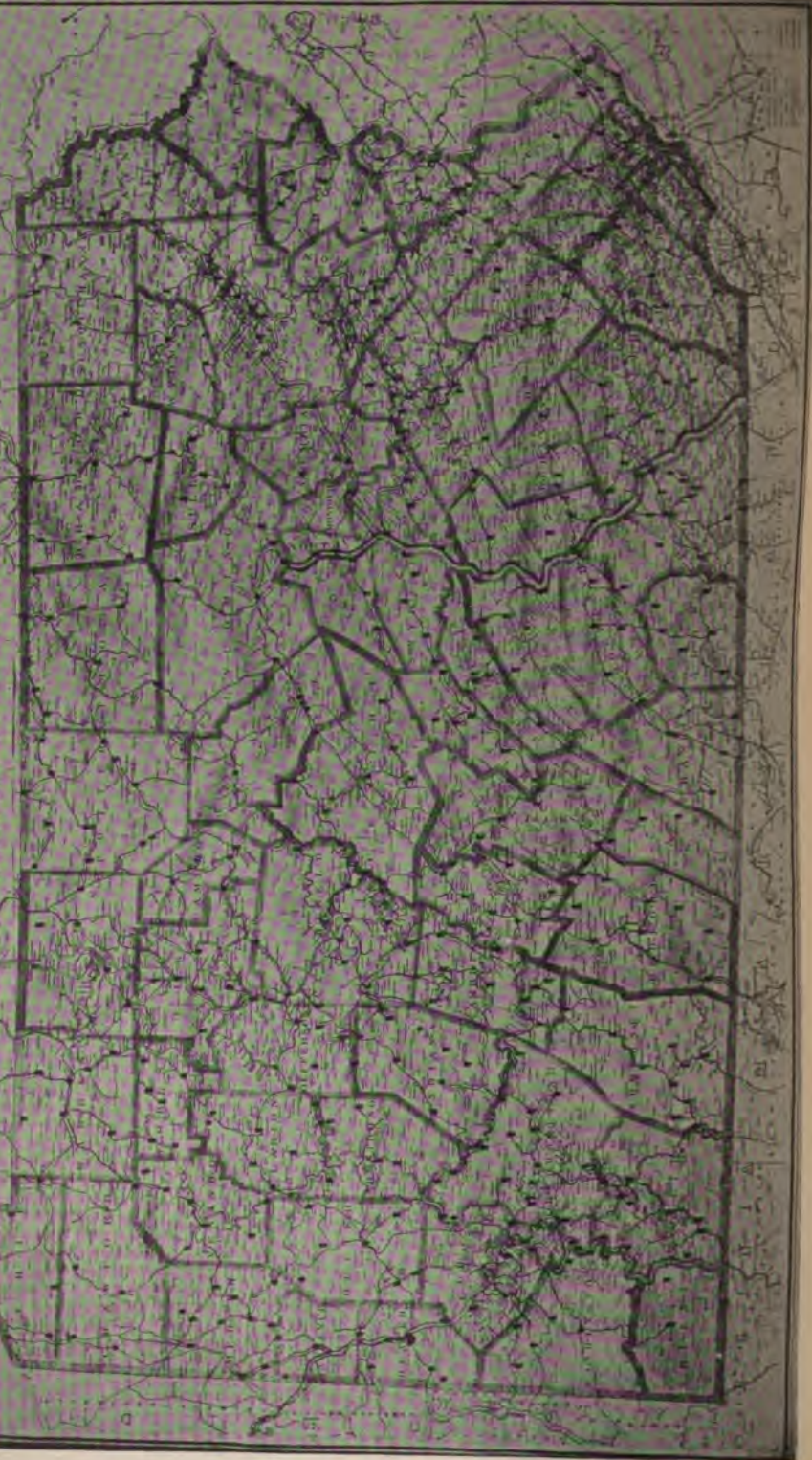


THE DIVISION OF DISTRIBUTION OF
ANTITOXIN.

HENRY W. PEIRSON, *Manager.*



MAP SHOWING DEPOTS FOR
FREE DISTRIBUTION
DIPHTHERIA ANTITOXIN
PENNSYLVANIA DEPT. OF HEALTH



THE DIVISION OF DISTRIBUTION OF ANTITOXIN.

The distribution of antitoxin to the poor of the State by the Department of Health began in October, 1905, but the establishment of distributing stations and the appointment of distributors did not take place until November 4, 1905, when 473 distributors were appointed at convenient points in every county in the State, outside of the cities of Philadelphia and Pittsburg; most of them being duly registered druggists with the exception of a few physicians appointed at places where no drug stores were located.

The number of stations has been increased as the actual need for same, after careful investigation, became apparent to the Department, and now numbers 511, an increase of 38 in a little over fourteen months' time.

It must be borne in mind, however, that all of these 511 distributing stations are not active at any one time, though such might be the case, and for that reason it was thought wise to cover every county as thoroughly as possible.

A glance at the map shown below will give an idea as to the location of the distributing stations now existing, and the accompanying list will give the names of the distributors.

LIST OF DISTRIBUTORS.

Commonwealth of Pennsylvania, Department of Health, Diphtheria Antitoxin Division. Distributors of Diphtheria Antitoxin appointed by Commissioner of Health, Samuel G. Dixon, M. D.

Antitoxin in curative and immunizing doses may be secured by physicians practicing in this Commonwealth upon their agreeing in writing that no charge of any kind is to be made for the Antitoxin, and that the person or persons for whom it is obtained are indigent in the sense that they cannot procure the necessities of life and at the same time purchase Antitoxin, and also that the physician will send to the Department of Health a full clinical report as specified by the Commissioner of Health.

ADAMS COUNTY.

Auker, Edward T., New Oxford.
Buehler, L. M., Gettysburg.
Cashman, Elmer W., York Springs.
Kemp, Dr. J. S., Littlestown.

Stover, Dr. J. G., Bendersville.
Trout, Dr. N. C., Fairfield.
Wolf, Charles S., East Berlin.
Wolff, W. E., Arendtsville.

ALLEGHENY COUNTY.

Burns, H. W., Coraopolis.
Copeland, W. W., McKees Rocks.
Covell, S. W., Wilkinsburg.
Forsythe, Geo. W., Natrona.
Goldsmith's Pharmacy, Tarentum.
Gress, Edward, Pitcairn.
Hollander, Jos. M., Braddock.
McClaran's Pharmacy, Glassport.

Quayle, F. E., Sharpsburg.
Paules, J. L., Homestead.
Shaffer, P. T. B., Elizabeth.
Swearingen, W. H., Bellevue.
Thompson, Harry M., Carnegie.
Walker's Prescription Pharmacy, McKeesport.
Whiteley, W. S., Verona.

ARMSTRONG COUNTY.

Hoover, A. M., Parkers Landing.
McClelland Bros., Ford City.
Parks, J. H., Leechburg.

Sharp, O. S., Dayton.
Sturgeon, W. J., Kittanning.
Wray, Frank T., Apollo.

BEAVER COUNTY.

Abcr, O. E., Industry.
Ambridge Drug Company, Ambridge.
Andriessen, Hugo, Beaver.
Bebout, W. I., Darlington.
Hoffman, W. A., Beaver Falls.

Kaye, Walter D., Monaca.
Neubig, Chas. J., Rochester.
Pugh, Frank S., Hookstown.
Schweppe, H. L., New Brighton.

BEDFORD COUNTY.

Alexander, W. A., Everett.
Zeth, J. L., Hopewell.
Grubb & Welmer, Clearville.
Heckerman, Ed. D., Bedford.
Rhodes, C. R., Hyndman.

Saxton Drug Store, Saxton.
Shaffer & Conrad, Osterburg.
Stayer, Irvin C., Woodbury.
Tewell, A. L., Chaneysville.

BERKS COUNTY.

Schomo, Chas. C., Hamburg.
Landis, F. T., Womelsdorf.
Mayer, Charles E., Boyertown.
Hoffman, N. J., Birdsboro.

Raser, William H., Reading.
Sellers, E. J., Kutztown.
Werley, Charles D., Topton.

BLAIR COUNTY.

Boecking, G. C., Tyrone.
Boecking & Meredith, Bellwood.
Boecking & Meredith, Altoona.
Butler, John P., Altoona.
Davis, H. I., Hollidaysburg.

Hair, Edward, Roaring Spring.
Hess, I. C., Duncansville.
Ketring, D. T., Williamsburg.
Sanders, J. C., Martinsburg.

BRADFORD COUNTY.

Allis, I. M., Wyalusing.
Billings, F. T. & Son, Le Raysville.
Carpenter & Pierce, Troy.
Francke, E. O., Athens.
Jump, H. D., Sayre.

Lomax, F. F., Monroeton.
Passmore, John E., Gillett.
Porter Est., Clark B., Towanda.
Whitman, W. W., Canton.
Wilcox, Ray S., New Albany.

BUCKS COUNTY.

Hellyer, E. F., Newtown.
Hulshizer, Est. of Martin, Doylestown.
Johnson, Dr. H. W., Riegelsville.
Moyer, Howard R., Quakertown.
Pryor, Frank C., Morrisville.

Pryor, William B. T., Langhorne.
Pursell, Howard, Bristol.
Williams, N. B., Perkaskie.
Willard, S. B., Yardley.

RUTLER COUNTY.

Maybury & Plzor, Slippery Rock.
Edmonds, A. J., Bruin.
Hall, Amos, Branchton.
Hindman, H. C., West Sunbury.

Mershon, E. B., Saxonburg.
Redick & Grohman, Butler.
Thomas, J. D., Evans City.

CAMBRIA COUNTY.

Baird, Mrs. Carrie, Dunlo.
Berry, Chas. L., Johnstown.
Davis, Howard, Conemaugh.
Gunn, John A., Patton.
James, E., & Son, Ebensburg.
Keffer, W. O., Frugality.

Morris, H. A., Barnesboro.
Perley, R. P., Allendale.
Reed, K. A., Gallitzin.
Sible, L. A., & Co., Johnstown.
South Fork Pharmacy, South Fork.

CAMERON COUNTY.

Barclay Bros., Sinnemahoning.
Mitchell, Wm. H., Driftwood.

Taggart, L. T., Emporium.

CARBON COUNTY.

Albert, Howard, Lansford.
Davis, Thomas E., Summit Hill.
Gilham, S. R., Leighton.
Hess, J. M., East Mauch Chunk.
Hess & Browell, Palmerton.

Latham, Peter H., Weatherly.
Mauch Chunk Pharmacy, Mauch
Chunk.
Watkins, William R., Nesquehoning.

CENTRE COUNTY.

Green, F. Potts, Bellefonte.
Meek, H. D., State College.
Melick, W. M., Philipsburg.

Meyer, Thomas F., Millheim.
Murray, Jared D., Center Hall.
Sickel, William A., Snow Shoe.

CHESTER COUNTY.

Aiken, James, Berwyn.
Hudson, Thompson, Hopewell Borough.
Hutchison, David W., East Downing-
town.
McCullough, C. B., Oxford.
Megilligan, Mrs. H. Y., Avondale.

Oberholtzer, Levy, Sons & Co., Phoe-
nixville.
Taylor, W. C., Spring City.
Thatcher, Jesse, West Chester.
Walton, George R., Malvern.
Young, W. S., Coatesville.

CLARION COUNTY.

Corbett, W. W., New Bethlehem.
Craig, J. S., St. Petersburg.
Gillilan, A. M., Tylersburg.
Greer, Dr. R. J., East Brady.
Hoch, W. H., New Mayville.

Kuhns, G. W., Leeper.
Mooney, John A., Curllsville.
Reid's Drug Store, Clarion.
Whiting, W. H., Knox.

CLEARFIELD COUNTY.

Currier, Dr. J., Grampian.
Flegal, Dr. J. S., Karthaus.
Glen Richey Trading Co., Glen Richey.
McCartney, W. C., Coalport.
Miller, Dr. S. J., Madera.
Phoenix Drug Store, Houtzdale.
Quinn, J. S., Du Bois.

Read, F. B. & Co., Osceola Mills.
Shugert, H. C., Morrisdale Mines.
Spackman, Dr. J. P., Peale.
Stoke and Feicht Drug Co., Clearfield.
Thompson, L. A., Mahaffey.
Tyler Mercantile Co., Tyler.
Wrigley, W. K., Curwensville.

CLINTON COUNTY.

Hilton & Heffner, Lock Haven.
McGhee, John, Beech Creek.
Swain Drug Co., Renovo.

Waltz, Frank, Flemington.
Valley Drug Store, Mill Hall.

COLUMBIA COUNTY.

Clewell & Currin, Berwick.
Ely, Chas. E., Millville.
Fisher, J. F., Catawissa.

Goldsworthy, John W., Centrailla.
Ringler, Geo. P., Bloomsburg.

CRAWFORD COUNTY.

Easterwood, F. K., Meadville.
Fisher & Fisher, Springboro.
Lydell, James, Cambridge Springs.

Wilkins & Kemble, Titusville.
Stratton, George, Linesville.

CUMBERLAND COUNTY.

Central Drug Co., Mt. Holly Springs.
Claudy, R. B., Newville.
Eckels Bros., Mechanicsburg.

Emrick, B. F., Carlisle.
Fleming & Fleming, Shippensburg.

DAUPHIN COUNTY.

Coble, A. C., Dauphin.
Davis, T. B., Williamstown.
Felty, Wilson, Linglestown.
Gross, E. Z., Harrisburg.
Hay, John W., Harrisburg.
Killough, S. M., Hummelstown.
Kuntz, John H., West Hanover.

Peters, D. A., Steelton.
Rewalt, J. W., Middletown.
Smith, A. M. & Co., Halifax.
Steever, Charles C., Millersburg.
Stroup, N. W., Elizabethville.
Zimmerman, H. M., Derry Church.
Kershaw, Harry, Chester.

DELAWARE COUNTY.

Cloud, Harlan, Darby.	Grafstrom, C. J., Llanerch.
Concordville Supply Co., Concordville.	Hadley, H. C., Wayne.
Dalton, D. A., Upland.	Rea, J. H., Chester.
Davis, Harry M., Lansdowne.	Shirer, V. C., Swarthmore.
Ellis, Wardle, Media.	

ELK COUNTY.

Amend, John, Wilcox.	Quinn & Smith, Johnsonburg.
Bennett's Branch Supply Co., Dent's Run.	Ross Drug Company, Ridgway.
Luhr, F. A., St. Marys.	Sharp, W. N., Haliton.

ERIE COUNTY.

Ames, N. F., & Co., Corry.	Loop, G. D., Northeast.
Andrews, W. C., Erie.	McMullen, A. K., Albion.
Frantz, G. A., Edinboro.	Smith, A. R., & Co., Girard.
Gates, William, Union City.	Wilkins, R. B., Wattsburg.

FAYETTE COUNTY.

Bulger, H. H., & Co., Brownsville.	Rathmell Bros., Cadwalader.
Dunaway, M. G., Fairchance.	Springer, R. E., Uniontown.
Feather, G. A., Smithfield.	Steele Pharmacy, Fayette City.
Huston, Frank, Connellsville.	Sterling, Jesse A., Masontown.
Oglevee, F. E., Vanderbilt.	Stouffer, Jas. C., Dawson.

FOREST COUNTY.

Detar, C. Y., Kellettville.	Mayburg Supply Co., Mayburg.
Dunn, J. C., Tionesta.	Neill, A. D., Marionville.
Fehlman, L. A., West Hickory.	Yetter, E. A., Lynch.

FRANKLIN COUNTY.

Bixler, S. H. C., Green Castle.	Montgomery, J. C., Chambersburg.
Krebs, Harry B., Mercersburg.	Skinner, H. W., Chambersburg.
Miller, D. L., Waynesboro.	

FULTON COUNTY.

Barton, C. J., Hustontown.	Dickson, W. S., McConnellsburg.
Cunningham, N. G., New Grenada.	

GREENE COUNTY.

Gibbons, Dr. A. J., Carmichaels.	Ullom & Bally, Waynesburg.
Hatfield, G. W., Mt. Morris.	

HUNTINGDON COUNTY.

Grove, Harry R., Alexandria.	Steel, H. E., Huntingdon.
James, G. W. C., Orbisonia.	Wolfe, D. R., Birmingham.
McClain, Jesse O., Robertsdale.	Wright, Geo. W., Mapleton Depot.
Minnick, J. M., Mount Union.	

INDIANA COUNTY.

Allison, Elmer W., Indiana.	Miller, M. G., Blairsville.
Conner, Jno. B., Glen Campbell.	Park, L. N., & Son, Marion Center.
Fisher, James, Rossiter.	Rink, Chas. E., Shelocta.
Goodlin, Elmer E., Saltsburg.	Stephens, T. D., Penn Run.
McCullough, H. L., Cookport.	Truby, S. H., Brush Valley.

JEFFERSON COUNTY.

Guthrie, H. F., Summerville.	Miller, J. A., & Son, Hamilton.
Hamilton, Dr. S. S., Punxsutawney.	Punxsutawney Drug Company, Punxsutawney.
Henderson & Craig, Brookville.	Shaffer, L., Cool Spring.
Humphreys, G. H., Brockwayville.	Stoke & Felcht Drug Co., Reynoldsville.
Mahoning Supply Company, Eleanor.	

JUNIATA COUNTY.

Banks, W. H., & Co., Mifflin.
Crawford, M. P., Mifflintown.
Haines, W. H., Thompsontown.

Heckerman's Drug Store, Port Royal.
McMeen, J. B., East Waterford.

LACKAWANNA COUNTY.

Davis, Jos., Taylor.
Dennis, F. E., Carbondale.
Foote Pharmacy, Archbald.
Graves, J. M. & F. M., Jermyn.

Jenkins, Geo. W., Scranton.
Koempel, Carl, Scranton.
Tiffany, F. M., Dalton.
Watkins, C. J., Olyphant.

LANCASTER COUNTY.

Baer & Co., C. C., Quarryville.
Bucher, W. L., Columbia.
Dierolf, Chas. B., Elizabethtown.
Fry, H. P., Lititz.
Garber, Elmer W., Mount Joy.
McCloskey, C. E., Marietta.

Miller, J. A., Lancaster.
Reeder, Dr. M. T., Millersville.
Royer, G. S., Ephrata.
Ruhl, H. F., Manheim.
Weaver, J. G., Strasburg.
Wendle, Samuel S., Christiana.

LAWRENCE COUNTY.

Jewell & Martin, New Wilmington.
McKinley & Frantz, New Castle.
Moorhead, Frank B., Volant.

Palace Drug Store, Ellwood City.
Shields, F. O., New Bedford.

LEBANON COUNTY.

Boger, Chas. E., Lebanon.
Kline, William C., Myerstown.

Light, D. K., Palmyra.
Seabold, W. S., Annville.

LEHIGH COUNTY.

Backenstoe, Martin J., Emaus.
Barndt, Mrs. S. K., Alburtis.
Dundore, Harry W., Emaus.
Horn's Drug Store, Coplay.

Horn, Chas. W., Slatington.
Keiper, H. L., Allentown.
Lawall Bros., Catasauqua.
Mohr, John J., Fogelsville.

LUZERNE COUNTY.

Briggs, Dr. J. F., Shickshinny.
Colborn, W. T., Ashley.
Durbin's Keystone Pharmacy, Plymouth.
Edwards, E. J., Drifton.
Farrer & Peck, Pittston.

Grover, M. E., Freeland.
James, Henry H., Parsons.
Mans, H. W., Hazleton.
Meyer, R. H., Nanticoke.
White, W. D., & Co., Wilkes-Barre.

LYCOMING COUNTY.

Harter, C. W., Muncy.
Miller, John L., Montgomery.
Mintzer, Dr. L. H. C., Ralston.

Staples, B. E., Jersey Shore.
Sutliff, Jacob, Hughesville.
Walton, L. L. & Co., Williamsport.

McKEAN COUNTY.

Brown, P. E., Mt. Jewett.
Hogarth, L. K., Smethport.
Kane Drug Co., Kane.

Mills, John C., Duke Center.
Thompson & Wood, Bradford.
Williams, J. H., Port Allegany.

MERCER COUNTY.

Crawford, C. E. J., Jamestown.
Donaldson, L. W., & Co., Jackson Center.
Forker, W. J., Grove City.
Good, J. R., Mercer.
Griffin, John L., Fredonia.

Hines, J. P., Stoneboro.
Jackson, T. C., Hadley.
Lewis, A. E., West Middlesex.
Martin, E. K., & Son, Sheakleyville.
Steele, H. A. G., Sharon.
West Harry D., Greenville.

MIFFLIN COUNTY.

Bishop, D. K., Milroy.
Eby, E. S., Lewistown.
Fultz, Allen, Wagner.

McDonald, J. A., Reedsville.
Roche, William F., McVeytown.
Shaver, Henry B., Newton Hamilton.

MONROE COUNTY.

Chamberlain, Edgar W., Mt. Pocono.
 Kerr, J. M., Stroudsburg.
 Rhoads, Dr. Geo. H., Tobyhanna.
 Seguine, J. A., Cresco.

Trexler, Dr. J. A., Brodheadsville.
 Trach, Dr. D. C., Kresgeville.
 Wertman, Dr. A. A., Tannersville.

MONTGOMERY COUNTY.

Beshore Drug Company, Pottstown.
 Bunting, Frank A., Souderton.
 Craig, James D., Fort Washington.
 Culbert, Jos. W., Collegeville.
 Huzzard, Curtis, Norristown.
 King, A. J., Ardmore.
 King, L. Stanley, Bala.
 Kuhns, E. J., Lansdale.

Logan, F. H., North Wales.
 McLaughlin, Harry A., Jenkintown.
 Medico Drug and Chemical Company,
 Royersford.
 Moore, Christian, Est., Bryn Mawr.
 Neville, William, Conshohocken.
 Pennepacker & Bromer, Schwenkville.
 Rothwell, Walter, Hatboro.

MONTOUR COUNTY.

Gosh, J. D., & Co., Danville.

NORTHAMPTON COUNTY.

Burkhart, H. A., Bethlehem.
 Elsenhart, E. K., Bangor.
 Heller, H. D., Hellertown.
 Jacoby, Cyrus, South Bethlehem.

Miller, S. R., Bath.
 Scheffler, J. S., Pen Argyle.
 Weaver's Pharmacy, Easton.
 Yeakel, Nelson L., & Co., Nazareth.

NORTHUMBERLAND COUNTY.

Armstrong, William K., Sunbury.
 Clarkson, T. R., & Co., Shamokin.
 Dunn, John B., Pottstown.
 Keiser, E. L., Milton.
 Krebs, J. S., Herndon.

Mengel, J. S., Trevorton.
 Samuel, Dr. E. W., Mt. Carmel.
 Standard Drug Store, Mt. Carmel.
 Wenck, S. M. G., & Son, Northumber-
 land.

POTTER COUNTY.

Cool, W. F., Roulette.
 Gilbert, W. E., Harrison Valley.
 Meine, Dr. Chas., Germania.
 Lane, H. K., Ulysses.
 Lyon, G. W., Shingle House.
 McGee & Miller, Costello.

Patterson, B. G., Genesee.
 Richardson, L., Cross Fork.
 Robertson, J. W., Galetton.
 Sanford, W. F., Austin.
 Thompson, M. S., & Co., Coudersport.

PIKE COUNTY.

Armstrong, C. O., Milford.

Shannon, W. R., Lackawaxen.

PERRY COUNTY.

Eby, B. M., Newport.
 Johnson, A. R., New Bloomfield.
 Lahr, J. B., Millerstown.

Lehman, S. W., Duncannon.
 Shuler, S. M., & Sons, Liverpool.
 Zimmerman, Thaddeus, Ickesburg.

SCHUYLKILL COUNTY.

Beck, Charles F., Cressona.
 Bensinger, G. I., Schuylkill Haven.
 Coble, Dr. J. W., Tamaqua.
 Cowen, Williams S., Pottsville.
 Depew, J. A., Delano.
 Driebelbis, G. W., Tower City.
 Holt, William P., Frackville.

Houck, Paul W., Shenandoah.
 Krebs, H. J., Mahanoy City.
 People's Pharmacy, Tremont.
 Sutton, John, Pine Grove.
 Monaghan, Dr. W. J., Girardville.
 Williams, R. J., Ashland.

SNYDER COUNTY.

Charles, Jerry, Freeburg.
 Spangler, W. H., Middleburg.
 Uish, Calvin, McClure.

Wagner, J. O., Beaver Springs.
 Wagenseller, George D., Selinsgrove.

SOMERSET COUNTY.

Brallier, J. J., Berlin.	Mountain's Pharmacy, Confluence.
Dobson, G. L., Stoyestown.	Picking, J. S., Somerset.
Gross, Wm. H., Boswell.	Pollard, R. T., Garrett.
Home Drug Co., Windber.	Sembower, A. J., Markleton.
Jacobs, Dr. T. J., Somerfield.	Thomas, F. B., Meyersdale.
McCormick, H. C., Rockwood.	

SULLIVAN COUNTY.

Hoffa, Charles W., Dushore.	Lopez Drug Co., Lopez.
Lancaster, H. D., Forksville.	Voorhees, C. D., Sonestown.

SUSQUEHANNA COUNTY.

Davis & Allen, Forest City.	Sands, F. E., & Co., Hallstead.
French, A. P., Susquehanna.	Taylor, A. J., Hopbottom.
Morris, F. D., Montrose.	

TIOGA COUNTY.

Babcock, W. C., Blossburg.	Fessler, T. A., Elkland.
Bates, John P., Mansfield.	Gilbert, F. L., Knoxville.
Blackwell, R. J., Lloyd.	Holcomb, Frank B., Westfield.
Blatchley & Campbell, Wellsboro.	Wells, J. E., Tioga.
Darling's Pharmacy, Lawrenceville.	

UNION COUNTY.

Baker, Dr. T. D., Lewisburg.	Glover, O. W. H., Laurelton.
Galloway & Meek, Allenwood.	Steans, J. C., Mifflinburg.

VENANGO COUNTY.

Curtis, L. C., Utica.	Strahl, Henry, Petroleum Center.
Gosser Drug Co., Emlenton.	Third Ward Pharmacy, Franklin.
Griffith, E. J., Oil City.	Zeamer, H. C., Pleasantville.
McClintock, J. E. & J. M., Kennerdell.	

WARREN COUNTY.

Kemble & Son, C., Tidloute.	Pryor, G. T., Sheffield.
McDonald, J. G., Sugar Grove.	Russel, H. T., Russell.
Pierce, William S., Warren.	Simpson Bros., North Clarendon.

WASHINGTON COUNTY.

Hogsett Bros., Monongahela.	McMurray, H. B., Burgettstown.
Coulter & Co., McDonald.	Piper Bros., Charleroi.
Donaldson, J. B., Canonsburg.	Piper & Dague, Donora.
Horn, H. M., Washington.	Retzer, Charles, Hickory.

WAYNE COUNTY.

Davis & Allen, Forest City.	Stevens, W. A., Hamilton.
Jadwin, C. C., Honesdale.	Tiffany, J. E., Mt. Pleasant.
Snyder, M. T., Hawley.	

WESTMORELAND COUNTY.

Broadway Drug Co., Scottdale.	Martin, A. E., Greensburg.
Coldsmith, C. F., Mt. Pleasant.	Obley, H. A., West Newton.
Cook, J. G., New Alexandria.	Potts, W. J., Ligonier.
Fink, George W., Irwin.	Smith, Horace L., Jeanette.
Freeman, J. W., Derry.	Tassell Pharmacy, Latrobe.
Fry, F. L., Manor.	Wilson, J. M., New Florence.
Hunnell, B. S., New Kensington.	Zimmerman, W. J., Delmont.
Kirk, W. P., Monessen.	

WYOMING COUNTY.

Besteder, Charles, Center Moreland.	Sickler, H., Tunkhannock.
Reynolds Oscar J., Nicholson.	Tibbins, George H., Noxen.

YORK COUNTY.

Britcher, Milton W., Dillsburg.
 Emlet & Jenkins, Hanover.
 Gable, John W., Hellam.
 Seitz, J. E., Glen Rock.
 Grove, J. H., New Freedom.
 Hoke, Martin, Spring Forge.
 Lafean, A. H. & Bro., York.
 Meyers, G. A., Dallastown.
 Moody, C. W., Red Lion.

Mull, Harry, Stewartstown.
 Murphy, J. C., York Haven.
 Overmiller, N. Allen, East Prospect.
 Stacks, A. Homer, York.
 Stahle, R. S., Emigsville.
 Smith, Samuel S., Windsor.
 Stewart, T. D., Delta.
 Tinsley, G. S., Wrightsville.
 Wallace, N. G., Dover.

COMMISSION.

Form A. D. No. 33.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

Diphtheria Antitoxin Division.

Know all Men by these Presents, that
 residing at in the county of
 State of Pennsylvania, ha.... thisday of 190....
 been duly appointed Distributor of Diphtheria Antitoxin, at
 County, Pennsylvania, under the rules of the Depart-
 ment of Health.

(Seal)

Commissioner of Health.

METHOD OF DISTRIBUTION.

After appointment the Distributor is furnished with an initial supply of serum, consisting of five packages of Antitoxin of 1,000 units and five packages of 3,000 units, together with blank forms, stamped envelopes, etc., necessary for its distribution; copies of which forms appear hereafter.

The physician discovering a case of diphtheria anywhere in his locality among the poor, has but to go to the nearest druggist who is a distributor, sign a receipt and secure all the Antitoxin he desires for the treatment of the case or cases he has on hand.

Form No. 17.—B.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

APPLICATION AND RECEIPT FOR DIPHTHERIA ANTITOXIN.

.....19....
 I hereby acknowledge the receipt of the following named amounts of Diphtheria Antitoxin:
 packages containing 1,000 units. Laboratory Nos.,
 packages containing 3,000 units. Laboratory Nos.,
 from Distributor, Address,
 in the name of the Department of Health. I hereby certify that the persons mentioned for whose treatment this Antitoxin is furnished are indigent and unable to otherwise procure the same. I agree to make no charge for it directly or indirectly, and if unused to return to the Distributor within ten days; also to mail to the Department of Health, immediately upon termination, a clinical report for each case, on the blanks furnished for this purpose.
 We have in stock at this time:—

..... packages of 1,000 units. (Physician's signature.)

..... packages of 3,000 units. (Address.)

..... (Distributor's signature.)

..... (Full address.)

with blue stub for Distributor's record; being application and receipt to be signed by the physician upon making application to the Distributor for Anti-

toxin for use on indigent patients in his locality found stricken with the disease, which gives the exact number of packages of Antitoxin, both 1,000 units, (immunizing) and 3,000 units (curative) taken by him, and which is forwarded to the Department with Form No. 19 mentioned below. The blue stub is for the Distributor's record of Antitoxin issued.

Blue Stub.

Form No. 17.-B.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

APPLICATION AND RECEIPT FOR DIPHTHERIA ANTITOXIN.

.....19....

I hereby acknowledge the receipt of the following named amounts of Diphtheria Antitoxin:

..... packages containing 1,000 units. Laboratory Nos.,

..... packages containing 3,000 units. Laboratory Nos.,

from Distributor, Address,

In the name of the Department of Health. I hereby certify that the persons mentioned for whose treatment this Antitoxin is furnished are indigent and unable to otherwise procure the same. I agree to make no charge for it directly or indirectly, and if unused to return to the Distributor within ten days; also to mail to the Department of Health, immediately upon termination, a clinical report for each case, on the blanks furnished for this purpose.

We have in stock at this time:—

..... packages of 1,000 units. (Physician's signature.)

..... packages of 3,000 units. (Address.)

..... (Distributor's signature.)

..... (Full address.)

Form A. D. No. 19.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

Diphtheria Antitoxin.

..... Units.
Manufacturer.

.....
Laboratory No.

Date within which the un-
opened vial or attached
slip must be returned to

Distributor,

Diphtheria Antitoxin, Units.

Manufacturer, Laboratory No.

Patient, Address,

Date of use,

Physician's signature,

Address,

Distributor's signature,

Address,

This slip when returned to Distributor must be forwarded by him to the Department of Health, together with the application for the same.

SAMUEL G. DIXON, Commissioner.

This slip is found placed around the outside of the packages of Antitoxin and is to be filled out by the physician using same; giving name of patient and address, date of use, physician's name and address, distributor's signature and address, and to be forwarded to the Department with Form No. 17-B above mentioned.

These slips, Forms A. D. No. 19, are filled out for 1,000 units immunizing and 3,000 units curative treatment, respectively; each slip or Form A. D. No. 19 representing one package of either 1,000 or 3,000 units strength; having also printed thereon the Laboratory number of the package of Antitoxin produced by the manufacturer.

Form A. D. No. 18b.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

CLINICAL REPORT OF DIPHTHERIA TREATED WITH ANTITOXIN.

Use a separate blank for each case and forward immediately upon the termination of the same to the Department of Health, Harrisburg, Pa.

Patient's name, Address, County, Pa.
Age, Sex, Color, Date of first visit,

Was treatment immunizing or curative?

If the treatment was immunizing, answer only the following questions:

Date of treatment, No. of units used,

How long had patient been exposed to the disease?

Did patient subsequently contract the disease (Yes or No)?

If the treatment was curative, answer the following questions:

Date of onset of the disease,

SPECIFY EACH DISEASE.

.....units used within.....hours of onset.

.....units used within.....hours after first treatment.

.....units used within.....hours after second treatment.

.....units used within.....hours after third treatment.

.....units used within.....hours after fourth treatment.

.....units used within.....hours after fifth treatment.

State whether disease was Post-nasal, Tonsillar, Pharyngeal, Laryngeal.

(Specify by crossing out names of regions unaffected.)

State complications if any,

State termination (Recovery or death),

Number of persons in household, Number affected, Number immunized,

What was the probable source of infection?

Remarks,

Distributor's Name, Signature, M. D.

Address, Address,

The above is the Clinical Report which gives the complete history of the case from the beginning of treatment to either recovery or death and which is to be signed by the physician and forwarded to the Department.

The three forms above mentioned when properly filled out make a complete record of each case of the distribution and use of Diphtheria Antitoxin issued by the Department of Health to the indigent throughout the entire State of Pennsylvania.

The total number of cases treated has been arranged into two sets of tables—October, November and December, 1905 being the first set and from January 1, 1906 to December, 1906 being the second set, which give in detail the number of cases treated from October, 1905 to December 31, 1906 and show the results tabulated under the following headings:

1. Period of initial treatment after onset of disease.
2. Showing results of treatment according to sex and age.
3. Period of initial treatment after onset and age.
4. Areas affected and period of initial treatment after onset of disease.
5. Number of cases treated in the several counties of the State by months with result.
6. Result of treatment of Diphtheria with Antitoxin according to number of units used and period of treatment after onset of disease.
7. Statement showing cases where subsequent treatments of Antitoxin were used after first twenty-four hours.
8. Number immunized with result.

TABLE I.

Antitoxin Treatment of Diphtheria for 1905.

Initial Dose, 3,000 Units.

Relation of Initial Treatment to Time of Onset, October, November and December.

Results.	Period Within Which Initial Treatment was Made.							Total.
	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day & over.	
Totals,	188	56	26	13	4	4	4	291
Recoveries,	163	47	23	10	2	3	2	255
Deaths,	18	9	3	3	2	1	2	33
Percentage of deaths, ..	9.67	16.07	11.50	23.07	50	25	50	12.96

TABLE II.

Antitoxin Treatment of Diphtheria for 1905.

Results of Treatment of Diphtheria With Antitoxin With Relation to Sex and Age, October, November and December.

Results.	Sex.	Age Periods.										
		0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20+	Total.	
Totals,	M.,	0	3	10	16	17	54	19	6	6	131	293
	F.,	2	7	10	15	12	54	31	13	18	162	
Recoveries,	M.,	0	2	9	14	12	46	17	6	6	112	255
	F.,	2	4	7	12	9	49	30	13	17	133	
Deaths,	M.,	0	1	1	2	5	8	2	0	0	19	38
	F.,	0	3	3	3	3	5	1	0	1	19	

TABLE III.

Antitoxin Treatment of Diphtheria for 1905.

Initial Dose, 3,000 Units.

Result of Treatment of Diphtheria With Antitoxin According to Period of Initial Treatment After Onset and Age.

Period of Treatment.	Results.	Age Periods.									
		0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20+	Total.
1st day,	Total,	2	9	15	20	15	60	33	15	17	186
	Rec.,	2	5	14	15	12	55	33	15	17	168
	D.,	0	4	1	5	3	5	0	0	0	18
2nd day,	Total,	0	1	2	7	6	27	9	1	3	56
	Rec.,	0	1	1	7	4	24	7	1	2	47
	D.,	0	0	1	0	2	3	2	0	1	9

TABLE IV.

Result of Treatment of Diphtheria With Antitoxin According to Areas Affected and Period of Initial Treatment After Onset of Disease, October, November and December—Continued.

Area.	Result.	Period Within Which Initial Treatment was Made.									
		1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	8th day and over.	Total.	Per cent.
Post-nasal, pharyngeal and tonsillar.	Total,....	12	8	3	2	1	0	1	0	27	.....
	Rec.,.....	11	5	3	2	0	0	1	0	22	.....
	D.,.....	1	3	0	0	1	0	0	0	5	18.51
Post-nasal, tonsillar and laryngeal.	Total,....	3	0	0	0	0	0	0	0	3	.....
	Rec.,.....	3	0	0	0	0	0	0	0	3	100
	D.,.....	0	0	0	0	0	0	0	0	0	.....
Post-nasal and laryngeal, ..	Total,....	2	2	0	0	0	0	0	0	4	.....
	Rec.,.....	2	2	0	0	0	0	0	0	4	100
	D.,.....	0	0	0	0	0	0	0	0	0	.....
Tonsillar and laryngeal,	Total,....	4	2	3	0	0	0	1	0	10	.....
	Rec.,.....	2	2	2	0	0	0	0	0	6	.....
	D.,.....	2	0	1	0	0	0	1	0	4	40
Pharyngeal, tonsillar and laryngeal.	Total,....	1	0	1	2	0	0	0	0	4	.....
	Rec.,.....	0	0	0	1	0	0	0	0	1	.....
	D.,.....	1	0	1	1	0	0	0	0	3	75
Pharyngeal and tonsillar, ..	Total,....	34	11	5	3	1	0	0	0	54	.....
	Rec.,.....	34	10	5	3	0	0	0	0	52	.....
	D.,.....	0	1	0	0	1	0	0	0	2	3.70
Post-nasal and tonsillar, ...	Total,....	4	2	4	0	0	0	0	0	10	.....
	Rec.,.....	3	0	4	0	0	0	0	0	7	.....
	D.,.....	1	2	0	0	0	0	0	0	3	30
Pharyngeal and laryngeal,...	Total,....	3	0	0	1	1	0	0	0	5	.....
	Rec.,.....	1	0	0	0	1	0	0	0	2	.....
	D.,.....	2	0	0	1	0	0	0	0	3	60
Post-nasal, pharyngeal and laryngeal.	Total,....	0	2	0	0	0	1	0	0	3	.....
	Rec.,.....	0	1	0	0	0	0	0	0	1	.....
	D.,.....	0	1	0	0	0	1	0	0	2	66.66
Grand total,	Rec.,.....									255	.....
	D.,.....									38	12.96

TABLE V.

Antitoxin Treatment of Diphtheria for 1905.

Initial Dose, 3,000 Units.

Result of Treatment of Diphtheria With Antitoxin in the Several Counties by the Months.

County.	Result.	Oct.	Nov.	Dec.	Total.
Adams,	Total,....	0	0	1	1
	Rec.,.....	0	0	1	1
	D.,.....	0	0	0	0
Allegheny,	Total,....	0	1	4	5
	Rec.,.....	0	1	3	4
	D.,.....	0	0	1	1
Armstrong,	Total,....	0	1	0	1
	Rec.,.....	0	1	0	1
	D.,.....	0	0	0	0
Beaver,	Total,....	0	0	3	3
	Rec.,.....	0	0	1	1
	D.,.....	0	0	2	2
Blair,	Total,....	0	3	2	5
	Rec.,.....	0	3	2	5
	D.,.....	0	0	0	0

TABLE V.

Result of Treatment of Diphtheria With Antitoxin in the Several Counties by Months—Continued.

County.	Result.	Oct.	Nov.	Dec.	Total.
Bradford,	Total,.....	0	0	12	12
	Rec.,.....	0	0	12	12
	D.,.....	0	0	0	0
Berks,	Total,.....	0	5	6	11
	Rec.,.....	0	4	3	7
	D.,.....	0	1	3	4
Bucks,	Total,.....	0	0	3	3
	Rec.,.....	0	0	3	3
	D.,.....	0	0	0	0
Butler,	Total,.....	0	0	1	1
	Rec.,.....	0	0	1	1
	D.,.....	0	0	0	0
Cambria,	Total,.....	0	1	2	3
	Rec.,.....	0	1	2	3
	D.,.....	0	0	0	0
Carbon,	Total,.....	0	7	15	22
	Rec.,.....	0	7	15	22
	D.,.....	0	0	0	0
Chester,	Total,.....	0	2	5	7
	Rec.,.....	0	2	4	6
	D.,.....	0	0	1	1
Clearfield,	Total,.....	0	1	2	3
	Rec.,.....	0	0	2	2
	D.,.....	0	1	0	1
Dauphin,	Total,.....	0	10	13	23
	Rec.,.....	0	9	12	21
	D.,.....	0	1	1	2
Delaware,	Total,.....	0	1	3	4
	Rec.,.....	0	1	3	4
	D.,.....	0	0	0	0
Elk,	Total,.....	0	3	0	3
	Rec.,.....	0	3	0	3
	D.,.....	0	0	0	0
Erie,	Total,.....	0	2	0	2
	Rec.,.....	0	2	0	2
	D.,.....	0	0	0	0
Fayette,	Total,.....	0	0	7	7
	Rec.,.....	0	0	7	7
	D.,.....	0	0	0	0
Forest,	Total,.....	0	0	1	1
	Rec.,.....	0	0	1	1
	D.,.....	0	0	0	0
Franklin,	Total,.....	0	2	2	4
	Rec.,.....	0	2	2	4
	D.,.....	0	0	0	0
Indiana,	Total,.....	0	0	1	1
	Rec.,.....	0	0	1	1
	D.,.....	0	0	0	0
Jefferson,	Total,.....	0	3	0	3
	Rec.,.....	0	3	0	3
	D.,.....	0	0	0	0
Juniata,	Total,.....	0	3	0	3
	Rec.,.....	0	3	0	3
	D.,.....	0	0	0	0
Lackawanna,	Total,.....	0	1	7	8
	Rec.,.....	0	0	6	6
	D.,.....	0	1	1	2
Lancaster,	Total,.....	0	1	3	4
	Rec.,.....	0	1	3	4
	D.,.....	0	0	0	0
Lawrence,	Total,.....	0	1	2	3
	Rec.,.....	0	1	2	3
	D.,.....	0	0	0	0
Lebanon,	Total,.....	0	0	6	6
	Rec.,.....	0	0	4	4
	D.,.....	0	0	2	2

TABLE V.

Result of Treatment of Diphtheria With Antitoxin in the Several Counties by Months—Continued.

County.	Result.	Oct.	Nov.	Dec.	Total.
Lehigh,	Total,.....	1	5	14	20
	Rec.,.....	1	5	11	17
	D.,.....	0	0	3	3
Luzerne,	Total,.....	1	2	5	8
	Rec.,.....	1	1	5	7
	D.,.....	0	1	0	1
Lycoming,	Total,.....	0	0	5	5
	Rec.,.....	0	0	5	5
	D.,.....	0	0	0	0
McKean,	Total,.....	0	2	0	2
	Rec.,.....	0	2	0	2
	D.,.....	0	0	0	0
Mercer,	Total,.....	0	0	4	4
	Rec.,.....	0	0	4	4
	D.,.....	0	0	0	0
Mifflin,	Total,.....	0	0	2	2
	Rec.,.....	0	0	1	1
	D.,.....	0	0	1	1
Montgomery,	Total,.....	0	8	9	17
	Rec.,.....	0	8	6	14
	D.,.....	0	0	3	3
Montour,	Total,.....	0	0	8	8
	Rec.,.....	0	0	7	7
	D.,.....	0	0	1	1
Northampton,	Total,.....	0	2	7	9
	Rec.,.....	0	1	5	6
	D.,.....	0	1	2	3
Northumberland,	Total,.....	0	4	3	7
	Rec.,.....	0	4	3	7
	D.,.....	0	0	0	0
Schuylkill,	Total,.....	0	2	14	16
	Rec.,.....	0	2	11	13
	D.,.....	0	0	3	3
Somerset,	Total,.....	1	0	3	4
	Rec.,.....	1	0	2	3
	D.,.....	0	0	1	1
Sullivan,	Total,.....	0	1	4	5
	Rec.,.....	0	1	4	5
	D.,.....	0	0	0	0
Susquehanna,	Total,.....	0	1	0	1
	Rec.,.....	0	1	0	1
	D.,.....	0	0	0	0
Tioga,	Total,.....	0	1	1	2
	Rec.,.....	0	0	1	1
	D.,.....	0	0	1	1
Washington,	Total,.....	0	2	3	5
	Rec.,.....	0	1	3	4
	D.,.....	0	1	0	1
Wayne,	Total,.....	0	0	1	1
	Rec.,.....	0	0	0	0
	D.,.....	0	0	1	1
Westmoreland,	Total,.....	0	9	11	20
	Rec.,.....	0	8	9	17
	D.,.....	0	1	2	3
Wyoming,	Total,.....	0	0	1	1
	Rec.,.....	0	0	0	0
	D.,.....	0	0	1	1
York,	Total,.....	0	1	6	7
	Rec.,.....	0	1	6	7
	D.,.....	0	0	0	0
Total recoveries,					255
Total deaths,					38

TABLE VI.

Antitoxin Treatment of Diphtheria for 1905.

Result of Treatment of Diphtheria With Antitoxin According to Number of Units Used and Period of Initial Treatment After Onset of Disease.

Number of Units Used.	Results.	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	8th day and over.
1,000,	Total,.....	11	4	3	0	0	2	0	0
	Rec.,.....	11	4	3	0	0	2	0	0
	D.,.....	0	0	0	0	0	1	0	0
2,000	Total,.....	8	1	1	1	0	0	1	0
	Rec.,.....	7	1	1	1	0	0	1	0
	D.,.....	1	0	0	0	0	0	0	0
3,000,	Total,.....	133	67	35	23	10	5	5	3
	Rec.,.....	123	59	32	16	9	4	3	3
	D.,.....	11	8	3	7	1	2	2	0
4,000,	Total,.....	1	2	1	0	0	2	1	0
	Rec.,.....	0	0	0	0	0	0	0	0
	D.,.....	1	2	1	0	0	2	1	0
5,000,	Total,.....	3	1	0	0	0	0	0	1
	Rec.,.....	3	1	0	0	0	0	0	1
	D.,.....	0	0	0	0	0	0	0	0
6,000,	Total,.....	19	16	3	6	1	1	0	0
	Rec.,.....	14	11	1	5	1	1	0	0
	D.,.....	5	5	2	1	0	0	0	0
8,000,	Total,.....	1	0	0	0	0	0	1	0
	Rec.,.....	1	0	0	0	0	0	0	0
	D.,.....	0	0	0	0	0	0	1	0
9,000,	Total,.....	3	1	3	1	1	0	0	1
	Rec.,.....	3	1	1	1	0	0	0	0
	D.,.....	0	0	2	0	1	0	0	1
10,000,	Total,.....	1	0	1	0	0	0	0	0
	Rec.,.....	1	0	1	0	0	0	0	1
	D.,.....	0	0	0	0	0	0	0	0
12,000,	Total,.....	0	0	0	1	0	0	0	0
	Rec.,.....	0	0	0	1	0	0	0	0
	D.,.....	0	0	0	0	0	0	0	0
18,000,	Total,.....	0	1	0	0	0	0	0	0
	Rec.,.....	0	1	0	0	0	0	0	0
	D.,.....	0	0	0	0	0	0	0	0
24,000,	Total,.....	0	1	0	0	0	0	0	0
	Rec.,.....	0	1	0	0	0	0	0	0
	D.,.....	0	0	0	0	0	0	0	0

TABLE VII.

Antitoxin Treatment of Diphtheria for 1905.

Statement Showing Cases Where Subsequent Treatments of Antitoxin Were Used After First Twenty-four Hours.

Results.	Number of cases.	Units used.	Results.	Number of cases.	Units used.
Total,	1		Total,	1	
Rec.,	1	3,000	Rec.,	1	11,000
D.,	0		D.,	0	
Total,	3		Total,	10	
Rec.,	2	4,000	Rec.,	4	12,000
D.,	1		D.,	6	
Total,	3		Total,	1	
Rec.,	3	5,000	Rec.,	0	14,000
D.,	0		D.,	1	
Total,	34		Total,	3	
Rec.,	23	6,000	Rec.,	2	15,000
D.,	6		D.,	0	
Total,	4		Total,	1	
Rec.,	3	7,000	Rec.,	1	17,000
D.,	1		D.,	0	
Total,	1		Total,	1	
Rec.,	1	8,000	Rec.,	1	18,000
D.,	0		D.,	0	
Total,	17		Total,	1	
Rec.,	16	9,000	Rec.,	1	23,000
D.,	1		D.,	0	
Total,	3				
Rec.,	1	10,000			
D.,	2				

TABLE VIII.

Table Showing the Result of Treatment for Immunization.

Antitoxin Treatment of Diphtheria for 1905.

Number Treated for Immunization.	Units used.	Number not develop- ing diphtheria.	Number developing diphtheria.	Recoveries.
3,	500	3	0	0
143,	1,000	138	5	5
1,	1,500	1	0	0
3,	2,000	3	0	0
2,	2,500	2	0	0
3,	3,000	3	0	0

TABLE I.
Antitoxin Treatment of Diphtheria for 1906.
Initial Dose, 3,000 Units.
Relation of Initial Treatment to Time of Onset.

Results.	Periods in which Initial Treatment was Made.							
	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	8th day and over.
Totals,	2,105	903	302	107	52	22	22	17
Recoveries,	1,920	813	236	83	37	16	16	10
Deaths,	185	84	66	24	15	6	6	7
Percentage of deaths,	8.78	9.31	21.85	22.42	28.84	27.27	27.27	41.17
								11.13

TABLE II.
Antitoxin Treatment of Diphtheria for 1906.
Results of Treatment of Diphtheria With Antitoxin With Relation to Sex and Age.

Results.	Sex.	Age Periods.									
		0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20+	Total.
Totals,	M. F.	26 23	88 64	138 141	141 148	167 155	535 643	232 370	81 106	106 247	1,934 1,965
Recoveries,	M. F.	26 17	67 47	107 106	114 118	141 136	547 551	264 343	75 99	103 244	3,529 3,448
Deaths,	M. F.	10 6	21 17	31 33	27 30	26 20	48 61	13 27	6 6	3 3	3,128 3,003

TABLE III.

Antitoxin Treatment of Diphtheria for 1906.

Initial Dose, 3,000 Units.

Result of Treatment of Diphtheria With Antitoxin According to Period of Initial Treatment After Onset and Age.

[illegible]

Area.	Result.	Period Within Which Initial Treatment was Made.										Total.	Per cent.
		1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	8th day and over.				
Post-nasal,	Total,	22	10	2	4	0	1	1	1	41	.....	
	Rec.,	21	9	2	3	0	1	1	1	36	.....	
	Deaths, ..	1	1	0	1	0	0	0	0	5	12.19		
Pharyngeal,	Total,	85	18	12	4	1	0	0	1	121	.....	
	Rec.,	83	15	10	3	0	0	0	1	112	.....	
	Deaths, ..	2	3	2	1	1	0	0	0	9	7.43		
Tonsillar,	Total,	842	271	62	18	11	2	3	1	1,210	.....	
	Rec.,	828	265	59	18	11	2	3	1	1,187	.....	
	Deaths, ..	14	6	3	0	0	0	0	0	23	1.90		
Laryngeal,	Total,	205	79	31	13	4	3	3	3	341	.....	
	Rec.,	151	54	19	11	2	1	1	1	240	.....	
	Deaths, ..	54	25	12	2	2	2	2	2	101	29.61		
All combined,	Total,	271	70	33	13	7	4	2	0	401	.....	
	Rec.,	237	60	23	8	4	3	1	0	336	.....	
	Deaths, ..	34	10	10	5	3	1	2	0	65	16.20		
Post-nasal and Phar., ...	Total,	12	11	4	1	1	0	0	0	29	.....	
	Rec.,	11	6	2	0	1	0	0	0	20	.....	
	Deaths, ..	1	5	2	1	0	0	0	0	9	31.00		
Pn., Phar., Ton.,	Total,	129	64	41	17	11	2	3	4	271	.....	
	Rec.,	108	52	29	12	7	2	2	2	214	.....	
	Deaths, ..	21	12	12	5	4	0	1	2	57	21.03		
Pn., Ton., Lar.,	Total,	8	3	2	2	0	0	0	2	17	.....	
	Rec.,	8	3	1	2	0	0	0	0	14	.....	
	Deaths, ..	0	0	1	0	0	0	0	2	3	17.64		
Pn., Lar.,	Total,	10	8	0	1	3	1	2	0	25	.....	
	Rec.,	9	5	0	1	2	0	2	0	19	.....	
	Deaths, ..	1	3	0	0	1	1	0	0	6	24		
Ton., Lar.,	Total,	50	26	18	3	0	0	1	2	100	.....	
	Rec.,	40	20	14	2	0	0	1	2	79	.....	
	Deaths, ..	10	6	4	1	0	0	0	0	21	21		
Ph., Ton., Lar.,	Total,	35	18	15	10	1	0	0	1	78	.....	
	Rec.,	24	11	10	6	1	0	0	1	53	.....	
	Deaths, ..	11	5	5	4	0	0	0	0	25	32.05		
Ph., Ton.,	Total,	269	153	57	12	10	2	2	0	605	.....	
	Rec.,	356	146	52	12	8	2	1	0	577	.....	
	Deaths, ..	13	7	5	0	2	0	1	0	28	4.64		
Pn., Ton.,	Total,	109	32	13	8	1	2	3	1	169	.....	
	Rec.,	100	29	9	7	1	1	3	1	151	.....	
	Deaths, ..	9	3	4	1	0	1	0	0	18	10.65		
Ph., Lar.,	Total,	28	14	10	2	1	1	0	0	56	.....	
	Rec.,	21	12	5	0	1	0	0	0	39	.....	
	Deaths, ..	7	2	5	2	0	1	0	0	17	30.25		
Pn., Ph., Lar.,	Total,	18	7	6	1	0	1	1	1	35	.....	
	Rec.,	18	6	5	1	0	0	1	0	31	.....	
	Deaths, ..	0	1	1	0	0	1	0	1	4	11.42		
Total,	Rec., ....	.....	.....	.....	.....	.....	.....	.....	.....	3,168	.....	
	Deaths, ..	.....	.....	.....	.....	.....	.....	.....	.....	391	.....	
No area stated,	Rec., ....	.....	.....	.....	.....	.....	.....	.....	.....	28	.....	
	Deaths, ..	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	
Grand total,	Rec., ....	.....	.....	.....	.....	.....	.....	.....	.....	3,136	.....	
	Deaths, ..	.....	.....	.....	.....	.....	.....	.....	.....	393	11.13

TABLE V.
Antitoxin Treatment of Diphtheria for 1906.
Initial Dose, 3,000 Units.

Result of Treatment of Diphtheria With Antitoxin in the Several Counties by the Months.

County.	Result.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Adams,	Total,....	0	0	2	0	2	0	1	0	2	1	0	0	8
	Rec.,.....	0	0	2	0	1	0	0	0	1	1	0	0	5
	D.,.....	0	0	0	0	1	0	1	0	1	0	0	0	3
Allegheny,	Total,....	12	12	7	10	5	10	12	16	24	17	17	11	153
	Rec.,.....	11	11	5	9	5	7	9	16	21	17	16	11	138
	D.,.....	1	1	2	1	0	3	3	0	3	0	1	0	15
Armstrong,	Total,....	6	6	4	5	4	0	3	2	4	5	3	2	44
	Rec.,.....	5	5	4	4	4	0	2	2	3	4	2	2	37
	D.,.....	1	1	0	1	0	0	1	0	1	1	1	0	7
Beaver,	Total,....	0	0	2	0	0	0	2	0	8	4	0	2	18
	Rec.,.....	0	0	1	0	0	0	1	0	7	4	0	2	15
	D.,.....	0	0	1	0	0	0	1	0	1	0	0	0	3
Bedford,	Total,....	0	0	2	0	0	0	0	2	21	35	12	11	83
	Rec.,.....	0	0	2	0	0	0	0	1	19	34	10	8	74
	D.,.....	0	0	0	0	0	0	0	1	2	1	2	3	9
Blair,	Total,....	6	4	8	1	3	9	2	20	30	9	15	12	119
	Rec.,.....	6	4	8	1	2	9	2	18	29	9	15	11	114
	D.,.....	0	0	0	0	1	0	0	2	1	0	0	1	5
Bradford,	Total,....	7	4	2	1	8	0	0	2	1	3	2	3	33
	Rec.,.....	7	4	2	1	8	0	0	2	1	2	2	3	33
	D.,.....	0	0	0	0	0	0	0	0	0	1	0	0	1
Berks,	Total,....	5	9	7	7	3	1	2	1	2	9	7	4	57
	Rec.,.....	5	9	6	6	3	1	2	1	2	5	5	4	49
	D.,.....	0	0	1	1	0	0	0	0	0	4	2	0	8
Bucks,	Total,....	3	5	6	5	23	8	6	5	4	1	5	3	74
	Rec.,.....	3	5	5	5	22	8	5	5	3	1	5	2	67
	D.,.....	0	0	1	2	1	0	1	0	1	0	0	1	7
Butler,	Total,....	4	1	0	0	2	3	0	0	1	0	0	0	11
	Rec.,.....	1	1	0	0	2	3	0	0	1	0	0	0	8
	D.,.....	3	0	0	0	0	0	0	0	0	0	0	0	3
Cambria,	Total,....	20	2	12	6	9	5	23	12	14	12	12	23	150
	Rec.,.....	19	1	10	5	8	4	21	11	13	11	12	18	133
	D.,.....	1	1	2	1	1	1	2	1	1	1	0	5	17
Cameron,	Total,....	1	1	0	0	0	0	0	0	1	0	1	0	4
	Rec.,.....	1	1	0	0	0	0	0	0	1	0	1	0	4
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon,	Total,....	20	12	7	1	1	3	0	1	0	0	4	3	51
	Rec.,.....	20	10	6	1	1	2	0	1	0	0	4	3	48
	D.,.....	0	2	1	0	0	0	0	0	0	0	0	0	3
Centre,	Total,....	1	5	0	0	1	0	0	1	1	1	0	0	10
	Rec.,.....	0	5	0	0	1	0	0	1	1	1	0	0	9
	D.,.....	1	0	0	0	0	0	0	0	0	0	0	0	1
Chester,	Total,....	3	0	3	4	1	1	0	2	0	2	2	1	19
	Rec.,.....	2	0	3	4	1	1	0	2	0	2	2	1	18
	D.,.....	1	0	0	0	0	0	0	0	0	0	0	0	1
Clarion,	Total,....	0	0	0	1	0	0	2	3	2	4	3	4	19
	Rec.,.....	0	0	0	1	0	0	2	3	2	4	3	4	18
	D.,.....	0	0	0	0	0	0	0	1	0	0	0	0	1
Clearfield,	Total,....	4	4	4	8	2	4	2	11	13	28	29	9	118
	Rec.,.....	4	3	4	8	1	3	2	10	11	26	27	8	107
	D.,.....	0	1	0	0	1	1	0	1	2	2	2	1	11
Clinton,	Total,....	4	2	0	3	2	2	0	0	0	1	5	5	24
	Rec.,.....	3	2	0	3	2	2	0	0	0	1	5	4	23
	D.,.....	1	0	0	0	0	0	0	0	0	0	0	1	1
Columbia,	Total,....	0	1	0	0	1	1	0	0	7	4	1	2	17
	Rec.,.....	0	1	0	0	0	1	0	0	5	4	1	1	13
	D.,.....	0	0	0	0	1	0	0	0	2	0	0	1	4
Crawford,	Total,....	0	0	0	0	0	0	0	0	1	2	0	0	3
	Rec.,.....	0	0	0	0	0	0	0	0	1	2	0	0	3
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE V.
Antitoxin Treatment of Diphtheria for 1906.
Initial Dose, 3,000 Units.

**Result of Treatment of Diphtheria With Antitoxin in the Several Counties by
the Months.**

County.	Result.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Adams,	Total,.....	0	0	2	0	2	0	1	0	2	1	0	0	8
	Rec.....	0	0	2	0	1	0	0	0	1	1	0	0	5
	D.....	0	0	0	0	1	0	1	0	1	0	0	0	3
Allegheny,	Total,.....	12	12	7	10	5	10	12	16	24	17	17	11	153
	Rec.....	11	11	5	9	5	7	9	16	21	17	16	11	138
	D.....	1	1	2	1	0	3	3	0	3	0	1	0	15
Armstrong,	Total,.....	6	6	4	5	4	0	3	2	4	5	3	2	44
	Rec.....	5	5	4	4	4	0	2	2	3	4	2	2	37
	D.....	1	1	0	1	0	0	1	0	1	1	1	0	7
Beaver,	Total,.....	0	0	2	0	0	0	3	0	8	4	0	2	18
	Rec.....	0	0	1	0	0	0	1	0	4	0	0	2	15
	D.....	0	0	1	0	0	0	2	0	4	0	0	0	3
Bedford,	Total,.....	0	0	2	0	0	0	0	2	21	35	12	11	83
	Rec.....	0	0	2	0	0	0	0	1	19	34	10	8	74
	D.....	0	0	0	0	0	0	0	1	2	1	2	3	9
Blair,	Total,.....	6	4	8	1	3	9	2	20	30	9	15	12	119
	Rec.....	6	4	8	1	2	8	2	18	29	9	15	11	114
	D.....	0	0	0	0	1	0	0	2	1	0	0	1	5
Bradford,	Total,.....	7	4	2	1	8	0	0	2	1	3	2	3	33
	Rec.....	7	4	2	1	8	0	0	2	1	3	2	3	33
	D.....	0	0	0	0	0	0	0	0	0	0	0	0	1
Berks,	Total,.....	5	9	7	7	3	1	2	1	2	9	7	4	57
	Rec.....	5	9	6	6	3	1	2	1	2	5	5	4	49
	D.....	0	0	1	1	0	0	0	0	0	4	2	0	8
Bucks,	Total,.....	3	5	6	5	23	8	6	5	4	1	5	3	74
	Rec.....	2	5	5	3	22	8	5	5	3	1	5	2	67
	D.....	0	0	1	2	1	0	1	0	1	0	0	1	7
Butler,	Total,.....	4	1	0	0	2	3	0	0	1	0	0	0	11
	Rec.....	1	1	0	0	2	3	0	0	1	0	0	0	9
	D.....	3	0	0	0	0	0	0	0	0	0	0	0	2
Cambria,	Total,.....	20	2	12	6	9	5	23	12	14	12	12	23	150
	Rec.....	19	1	10	5	8	4	21	11	13	11	12	18	123
	D.....	1	1	2	1	1	1	2	1	1	1	0	5	17
Cameron,	Total,.....	1	1	0	0	0	0	0	0	1	0	1	0	4
	Rec.....	1	1	0	0	0	0	0	0	1	0	1	0	4
	D.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon,	Total,.....	20	12	7	1	1	3	0	1	0	0	4	2	51
	Rec.....	20	10	6	1	1	2	0	1	0	0	4	3	48
	D.....	0	2	1	0	0	0	0	0	0	0	0	0	3
Centre,	Total,.....	1	5	0	0	1	0	0	1	1	1	0	0	10
	Rec.....	0	5	0	0	1	0	0	1	1	1	0	0	9
	D.....	1	0	0	0	0	0	0	0	0	0	0	0	1
Chester,	Total,.....	3	0	3	4	1	1	0	2	0	2	2	1	19
	Rec.....	2	0	3	4	1	1	0	2	0	2	2	1	18
	D.....	1	0	0	0	0	0	0	0	0	0	0	0	1
Clarion,	Total,.....	0	0	0	1	0	0	2	3	2	4	3	4	19
	Rec.....	0	0	0	1	0	0	2	3	2	4	3	4	18
	D.....	0	0	0	0	0	0	0	1	0	0	0	0	1
Clearfield,	Total,.....	4	4	4	8	2	4	2	11	13	23	29	9	118
	Rec.....	4	3	4	8	1	3	2	10	11	26	27	8	107
	D.....	0	1	0	0	1	1	0	1	2	7	2	1	11
Clinton,	Total,.....	4	2	0	3	2	2	0	0	0	1	5	5	24
	Rec.....	3	2	0	3	2	2	0	0	0	1	5	4	22
	D.....	1	0	0	0	0	0	0	0	0	0	0	1	2
Columbia,	Total,.....	0	1	0	0	1	1	0	0	7	4	1	2	17
	Rec.....	0	1	0	0	0	1	0	0	5	4	1	1	13
	D.....	0	0	0	0	1	0	0	0	2	0	0	1	4
Crawford,	Total,.....	0	0	0	0	0	0	0	0	1	2	0	0	3
	Rec.....	0	0	0	0	0	0	0	0	1	2	0	0	3
	D.....	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE V.
Result of Treatment of Diphtheria With Antitoxin in the Several Counties by
the Months—Continued.

County.	Result.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Cumberland,	Total,.....	0	3	1	1	0	2	1	0	4	11	0	1	25
	Rec.,.....	0	3	0	1	0	2	1	0	4	11	0	1	25
	D.,.....	0	0	1	0	0	0	1	0	0	0	0	0	2
Dauphin,	Total,.....	5	7	7	6	2	3	1	2	2	1	6	4	46
	Rec.,.....	4	5	6	5	3	2	1	2	1	1	3	3	36
	D.,.....	1	2	1	1	0	1	0	0	1	0	3	1	10
Delaware,	Total,.....	11	5	7	7	3	2	0	4	42	50	26	5	163
	Rec.,.....	8	3	6	7	2	2	0	3	35	48	26	5	147
	D.,.....	3	2	1	0	0	0	0	1	6	2	0	0	15
Elk,	Total,.....	0	1	1	0	5	1	0	2	5	2	1	2	20
	Rec.,.....	0	1	1	0	5	1	0	2	5	1	1	2	20
	D.,.....	0	0	0	0	0	0	0	0	0	1	0	0	1
Erie,	Total,.....	0	1	0	1	0	0	0	1	0	3	4	4	14
	Rec.,.....	0	1	0	1	0	0	0	0	0	0	3	4	13
	D.,.....	0	0	0	0	0	0	0	1	0	0	0	0	1
Fayette,	Total,.....	2	1	4	3	1	0	2	5	3	6	2	1	21
	Rec.,.....	1	1	3	1	1	0	2	5	3	5	2	1	21
	D.,.....	1	0	1	0	0	0	0	0	1	0	0	0	2
Forest,	Total,.....	0	0	4	0	0	0	0	0	0	0	0	1	5
	Rec.,.....	0	0	4	0	0	0	0	0	0	0	0	0	4
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	1	1
Franklin,	Total,.....	1	0	0	1	0	1	2	6	4	8	2	1	26
	Rec.,.....	1	0	0	1	0	1	2	6	4	8	2	1	26
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Fulton,	Total,.....	13	0	0	0	0	0	0	0	0	1	0	0	14
	Rec.,.....	13	0	0	0	0	0	0	0	0	1	0	0	14
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Greene,	Total,.....	0	0	0	0	0	0	0	0	1	1	1	1	4
	Rec.,.....	0	0	0	0	0	0	0	0	1	1	1	1	4
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Huntingdon,	Total,.....	0	1	1	0	0	5	1	1	0	7	3	9	28
	Rec.,.....	0	0	1	0	0	4	1	1	0	7	3	9	26
	D.,.....	0	1	0	0	0	1	0	0	0	0	0	0	2
Indiana,	Total,.....	3	1	4	3	2	0	0	0	0	3	0	1	17
	Rec.,.....	3	1	3	3	2	0	0	0	0	3	0	1	17
	D.,.....	0	0	1	0	0	0	0	0	0	0	0	0	1
Jefferson,	Total,.....	1	1	1	1	3	0	0	3	5	1	2	1	19
	Rec.,.....	1	1	1	1	2	0	0	3	4	1	1	0	15
	D.,.....	0	0	0	0	1	0	0	1	1	0	1	1	4
Juniata,	Total,.....	0	0	0	1	0	0	0	0	0	0	0	0	1
	Rec.,.....	0	0	0	1	0	0	0	0	0	0	0	0	1
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Lackawanna,	Total,.....	6	21	20	24	26	14	12	16	38	38	38	15	283
	Rec.,.....	6	17	19	22	24	14	11	12	37	35	36	15	245
	D.,.....	0	4	1	2	2	0	1	4	1	3	2	0	38
Lancaster,	Total,.....	7	4	3	4	2	1	2	4	4	3	3	2	40
	Rec.,.....	7	2	3	3	1	1	2	3	4	2	3	1	33
	D.,.....	0	2	0	1	1	0	0	1	0	1	0	2	7
Lawrence,	Total,.....	4	4	19	1	0	0	0	1	9	4	1	0	43
	Rec.,.....	4	4	19	0	0	0	0	0	8	2	1	0	38
	D.,.....	0	0	0	1	0	0	0	1	1	2	0	0	5
Lebanon,	Total,.....	3	3	16	6	1	1	2	2	23	26	14	11	108
	Rec.,.....	3	2	11	5	1	1	2	1	20	25	13	10	94
	D.,.....	0	1	5	1	0	0	0	1	3	1	1	1	14
Lehigh,	Total,.....	26	26	27	13	7	15	11	18	26	44	44	26	276
	Rec.,.....	21	22	24	11	6	10	11	15	16	43	41	24	244
	D.,.....	4	4	3	2	1	5	0	3	4	1	3	2	32
Luzerne,	Total,.....	24	16	14	13	1	6	4	9	7	16	10	9	129
	Rec.,.....	21	14	12	11	0	6	4	7	6	14	8	7	110
	D.,.....	3	2	2	2	1	0	0	2	1	2	2	2	19
Lycoming,	Total,.....	7	4	7	5	11	0	1	1	3	1	7	4	51
	Rec.,.....	7	4	6	5	11	0	1	1	3	1	7	3	49
	D.,.....	0	0	1	0	0	0	0	0	0	0	0	1	2

TABLE V.

Result of Treatment of Diphtheria With Antitoxin in the Several Counties by the Months—Continued.

County.	Result.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
McKean,	Total,.....	1	0	1	0	1	2	1	5	1	0	7	3	22
	Rec.,.....	1	0	1	0	1	2	1	4	1	0	7	3	21
	D.,.....	0	0	0	0	0	0	0	1	0	0	0	0	1
Mercer,	Total,.....	4	6	0	7	4	4	0	2	10	19	26	10	91
	Rec.,.....	4	6	0	6	3	4	0	2	9	19	25	10	88
	D.,.....	0	0	0	1	1	0	0	0	1	0	0	0	3
Mifflin,	Total,.....	1	0	1	0	0	0	1	1	0	17	3	1	25
	Rec.,.....	1	0	1	0	0	0	1	1	0	17	3	1	25
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Monroe,	Total,.....	0	0	2	7	0	0	0	0	1	0	7	1	18
	Rec.,.....	0	0	1	7	0	0	0	0	1	0	5	1	15
	D.,.....	0	0	1	0	0	0	0	0	0	0	2	0	3
Montgomery,	Total,.....	7	8	11	10	13	9	6	4	8	11	16	11	114
	Rec.,.....	6	7	11	7	11	6	6	3	8	9	16	10	100
	D.,.....	1	1	0	3	2	3	0	1	0	2	0	1	14
Montour,	Total,.....	13	3	11	3	1	0	1	0	3	8	5	1	49
	Rec.,.....	12	3	10	3	1	0	1	0	2	7	5	1	45
	D.,.....	1	0	1	0	0	0	0	0	1	1	0	0	4
Northampton,	Total,.....	27	13	29	11	9	4	2	16	5	14	12	20	162
	Rec.,.....	24	8	27	10	7	3	2	15	5	14	12	18	145
	D.,.....	3	5	2	1	2	1	0	1	0	0	0	2	17
Northumberland,	Total,.....	3	0	1	6	6	2	4	2	3	2	11	9	49
	Rec.,.....	3	0	1	6	6	2	4	2	2	2	11	5	44
	D.,.....	0	0	0	0	0	0	0	0	1	0	0	4	5
Perry,	Total,.....	2	5	1	0	0	0	0	0	0	0	4	0	12
	Rec.,.....	2	5	1	0	0	0	0	0	0	0	3	0	11
	D.,.....	0	0	0	0	0	0	0	0	0	0	1	0	1
Pike,	Total,.....	2	0	0	0	0	0	3	0	0	0	0	1	6
	Rec.,.....	2	0	0	0	0	0	2	0	0	0	0	1	5
	D.,.....	0	0	0	0	0	0	1	0	0	0	0	0	1
Potter,	Total,.....	0	0	1	2	0	2	10	0	0	7	0	4	26
	Rec.,.....	0	0	0	2	0	2	9	0	0	5	0	2	20
	D.,.....	0	0	1	0	0	0	1	0	0	2	0	2	6
Schuylkill,	Total,.....	21	27	35	23	21	5	20	24	28	33	37	32	306
	Rec.,.....	17	18	29	19	16	4	18	18	23	30	32	26	250
	D.,.....	4	9	6	4	5	1	2	6	5	3	5	6	56
Snyder,	Total,.....	4	5	0	1	0	1	1	2	0	0	0	0	14
	Rec.,.....	3	4	0	1	0	1	1	2	0	0	0	0	12
	D.,.....	1	1	0	0	0	0	0	0	0	0	0	0	2
Somerset,	Total,.....	7	0	0	0	1	4	1	6	3	7	9	2	40
	Rec.,.....	5	0	0	0	1	4	1	5	3	6	7	2	34
	D.,.....	2	0	0	0	0	0	0	1	0	1	2	0	6
Sullivan,	Total,.....	0	1	2	2	0	0	0	0	0	0	0	0	5
	Rec.,.....	0	1	2	2	0	0	0	0	0	0	0	0	5
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Susquehanna,	Total,.....	1	0	1	3	0	0	0	0	0	1	6	0	12
	Rec.,.....	0	0	0	3	0	0	0	0	0	1	6	0	10
	D.,.....	1	0	1	0	0	0	0	0	0	0	0	0	2
Tioga,	Total,.....	0	0	0	0	0	0	1	0	0	0	6	0	7
	Rec.,.....	0	0	0	0	0	0	1	0	0	0	3	0	4
	D.,.....	0	0	0	0	0	0	0	0	0	0	3	0	3
Union,	Total,.....	2	3	3	0	0	1	0	0	0	0	3	1	13
	Rec.,.....	2	3	3	0	0	1	0	0	0	0	3	1	13
	D.,.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Venango,	Total,.....	2	1	0	0	1	2	0	0	2	1	2	4	15
	Rec.,.....	1	0	0	0	1	2	0	0	1	0	2	3	10
	D.,.....	1	1	0	0	0	0	0	0	1	1	0	1	5
Warren,	Total,.....	0	0	0	1	0	0	0	2	0	0	0	0	3
	Rec.,.....	0	0	0	1	0	0	0	1	0	0	0	0	2
	D.,.....	0	0	0	0	0	0	0	1	0	0	0	0	1
Washington,	Total,.....	2	1	2	1	1	0	0	0	5	2	1	1	16
	Rec.,.....	2	0	2	1	1	0	0	0	3	2	1	1	13
	D.,.....	0	1	0	0	0	0	0	0	2	0	0	0	3

TABLE V.

Result of Treatment of Diphtheria With Antitoxin in the Several Counties by the Months—Continued.

County.	Result.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Wayne,	Total.....	3	0	0	0	0	1	0	3	4	5	0	19	
	Rec.....	2	0	0	0	0	1	0	3	4	5	0	19	
	D.....	1	0	0	0	0	0	0	0	1	0	0	4	
Westmoreland,	Total.....	12	6	4	2	2	6	9	15	22	6	8	16	102
	Rec.....	11	6	2	2	1	6	9	13	20	5	8	8	91
	D.....	1	0	2	0	1	0	0	2	2	1	0	2	11
Wyoming,	Total.....	2	0	2	1	3	1	0	1	1	0	0	2	13
	Rec.....	2	0	2	1	3	1	0	1	0	0	0	2	12
	D.....	0	0	0	0	0	0	0	0	1	0	0	0	1
York,	Total.....	5	4	0	2	1	0	2	2	6	3	12	11	48
	Rec.....	5	4	0	2	1	0	2	2	5	3	11	11	46
	D.....	0	0	0	0	0	0	0	0	1	0	1	0	2
Total recoveries, .....		...	...	...	...	...	...	...	...	...	...	...	...	3,136
Total deaths, .....		...	...	...	...	...	...	...	...	...	...	...	...	353

TABLE VI.

Antitoxin Treatment of Diphtheria for 1906.

Result of Treatment of Diphtheria With Antitoxin According to Number of Units Used and Period of Treatment After Onset of Disease.

Number of Units Used.	Results.	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	8th day and over.
500,	Total.....	0	2	0	0	0	0	0	0
	Rec.....	0	2	0	0	0	0	0	0
	D.....	0	0	0	0	0	0	0	0
1,000,	Total.....	129	29	8	2	0	1	1	1
	Rec.....	123	24	6	2	0	1	1	1
	D.....	6	5	2	0	0	0	0	0
2,000,	Total.....	46	27	17	1	3	1	0	0
	Rec.....	46	24	16	1	0	1	0	0
	D.....	0	3	1	0	3	0	0	0
3,000,	Total.....	1,615	560	238	76	23	12	17	10
	Rec.....	1,565	506	208	66	23	8	14	6
	D.....	110	54	30	20	8	5	3	4
4,000,	Total.....	71	29	11	6	2	1	1	0
	Rec.....	63	24	9	4	1	1	0	0
	D.....	8	5	2	2	1	0	1	0
4,500,	Total.....	3	0	0	0	0	0	0	0
	Rec.....	3	0	0	0	0	0	0	0
	D.....	0	0	0	0	0	0	0	0
5,000,	Total.....	16	14	2	4	1	0	0	0
	Rec.....	12	13	2	3	0	0	0	0
	D.....	4	1	0	1	1	0	0	0
5,500,	Total.....	1	0	0	0	0	0	0	0
	Rec.....	1	0	0	0	0	0	0	0
	D.....	0	0	0	0	0	0	0	0
6,000,	Total.....	270	98	37	11	9	3	3	4
	Rec.....	232	80	29	9	7	2	1	2
	D.....	38	18	8	2	2	1	2	2

TABLE VI.

Result of Treatment of Diphtheria With Antitoxin According to Number of Units Used and Period of Treatment After Onset of Disease—Continued.

Number of Units Used.	Results.	1st day.	2nd day.	3rd day	4th day	5th day	6th day	7th day.	8th day and over.
7,000,	Total.....	7	6	1	0	1	0	0	0
	Rec.....	6	5	1	0	1	0	0	0
	D.....	1	1	0	0	0	0	0	0
8,000,	Total.....	4	1	1	0	0	0	0	0
	Rec.....	3	1	1	0	0	0	0	0
	D.....	1	0	0	0	0	0	0	0
9,000,	Total.....	33	5	7	3	2	0	0	1
	Rec.....	24	4	4	3	2	0	0	1
	D.....	9	1	3	0	0	0	0	0
10,000,	Total.....	3	0	0	0	0	0	0	0
	Rec.....	3	0	0	0	0	0	0	0
	D.....	0	0	0	0	0	0	0	0
11,000,	Total.....	3	0	1	0	0	0	0	0
	Rec.....	1	0	1	0	0	0	0	0
	D.....	2	0	0	0	0	0	0	0
15,000,	Total.....	0	0	0	0	0	0	0	1
	Rec.....	0	0	0	0	0	0	0	0
	D.....	0	0	0	0	0	0	0	1
21,000,	Total.....	1	1	0	0	0	0	0	0
	Rec.....	1	0	0	0	0	0	0	0
	D.....	0	1	0	0	0	0	0	0

TABLE VII.

Statement Showing Cases Where Subsequent Treatments of Antitoxin Were Used After First Twenty-four Hours.

Antitoxin Treatment of Diphtheria for 1906.

Results.	Number of cases.	Units used.	Results.	Number of cases.	Units used.
Total,	24	2,000	Total,	12	14,000
Rec.,	20		Rec.,	7	
Deaths,	4		Deaths,	5	
Total,	2	2,500	Total,	36	15,000
Rec.,	2		Rec.,	27	
Deaths,	0		Deaths,	9	
Total,	14	3,000	Total,	4	16,000
Rec.,	14		Rec.,	2	
Deaths,	0		Deaths,	2	
Total,	1	3,250	Total,	6	17,000
Rec.,	1		Rec.,	5	
Deaths,	0		Deaths,	1	
Total,	2	3,500	Total,	22	18,000
Rec.,	2		Rec.,	18	
Deaths,	0		Deaths,	4	
Total,	62	4,000	Total,	5	19,000
Rec.,	58		Rec.,	3	
Deaths,	4		Deaths,	2	
Total,	18	5,000	Total,	2	20,000
Rec.,	15		Rec.,	0	
Deaths,	3		Deaths,	2	
Total,	431	6,000	Total,	6	21,000
Rec.,	313		Rec.,	6	
Deaths,	56		Deaths,	0	
Total,	50	7,000	Total,	3	22,000
Rec.,	41		Rec.,	2	
Deaths,	9		Deaths,	1	
Total,	29	8,000	Total,	4	23,000
Rec.,	25		Rec.,	4	
Deaths,	4		Deaths,	0	
Total,	206	9,000	Total,	4	24,000
Rec.,	178		Rec.,	4	
Deaths,	28		Deaths,	0	
Total,	26	10,000	Total,	1	27,000
Rec.,	24		Rec.,	1	
Deaths,	2		Deaths,	0	
Total,	10	11,000	Total,	1	30,000
Rec.,	7		Rec.,	1	
Deaths,	3		Deaths,	0	
Total,	1	11,500	Total,	2	33,000
Rec.,	1		Rec.,	2	
Deaths,	0		Deaths,	0	
Total,	86	12,000	Total,	1	40,000
Rec.,	71		Rec.,	0	
Deaths,	15		Deaths,	1	
Total,	7	13,000	Total,	1	121,000
Rec.,	6		Rec.,	1	
Deaths,	1		Deaths,	0	

TABLE VIII.

Table Showing the Results of Treatment for Immunization, 1906.

Number Treated for Immunization.	Units used.	Number not developing diphtheria.	Number developing diphtheria.	Recoveries.
1,	400	1	0	0
54,	500	83	1	1
2,	600	2	0	0
9,	750	9	0	0
2,130,	1,000	2,056	74	74
37,	1,500	37	0	0
8,	2,000	8	0	0
61,	3,000	53	2	2
2,	6,000	2	0	0

**NUMBER OF SYRINGES OF ANTITOXIN BY MONTHS FROM OCTOBER,
1905 TO DECEMBER 31, 1906.**

	1000 units.	3000 units.
October, 1905,	64	59
November 1905, (Initial supply),	2,517	2,453
December, 1905,	377	462
January, 1906,	314	503
February, 1906,	256	394
March, 1906,	289	455
April, 1906,	285	476
May, 1906,	148	295
June, 1906,	118	243
July, 1906,	156	314
August, 1906,	143	336
September, 1906,	564	768
October, 1906,	1,016	1,408
November, 1906,	824	1,271
December, 1906,	525	1,007
Total,	7,596	10,479

SUMMARY.

1905.

Number of cases treated during October, November and December, 1905,	293
Number of deaths,	38
Percentage of deaths,	12.96
Number immunized,	155
Number immunized and later contracting the disease,	5
Number of syringes, 1000 units, dispensed by distributors,	327
Number of syringes, 3000 units, dispensed by distributors,	619
Total cost,	\$7,251.80

1906.

Number of cases treated from January 1st to December 31st, 1906, ..	3,529
Number of deaths,	393
Percentage of deaths,	11.13
Number immunized,	2,334
Number immunized and later contracting the disease,	77
Number of syringes, 1000 units, dispensed by distributors,	3,725
Number of syringes, 3000 units, dispensed by distributors,	6,564
Total cost,	\$16,192.32

GENERAL SUMMARY.

Number of cases treated from October, 1905 to December 31st, 1906...	3,822
Number of deaths,	431
Percentage of deaths,	11.27
Number immunized,	2,489
Number immunized and later contracted the disease,	82
Number of syringes, 1000 units, dispensed by distributors,	4,052
Number of syringes, 3000 units, dispensed by distributors,	7,183
Total cost,	\$23,444.12

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